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JOHANNESBURG, TRANSVAAL, SATURDAY, MAR. 4, 1916.

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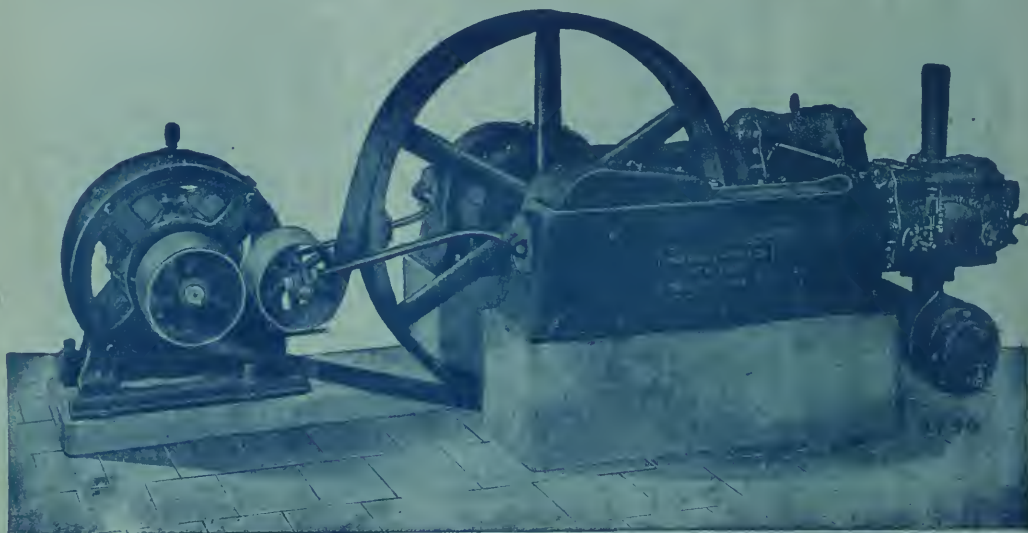
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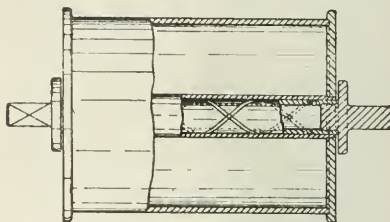
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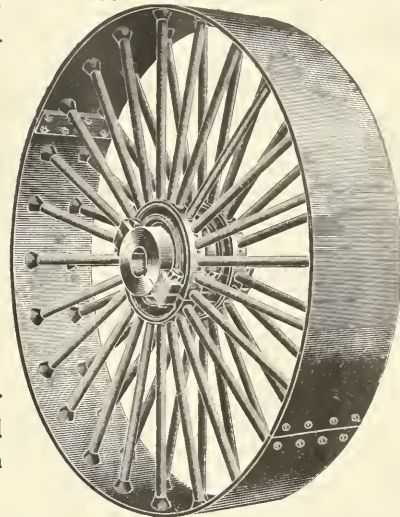
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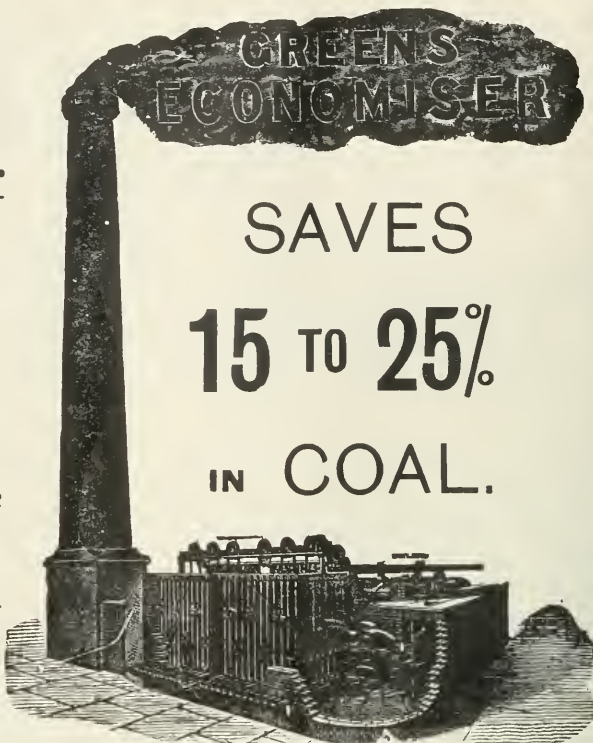
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Notes and News.

The Simmer Deep, Ltd., is willing to purchase on the market a certain number of the Second Debentures. Should holders wish to sell any portion of their holding, it is suggested that they should immediately instruct their brokers to that effect, stating the number of Debentures they are prepared to sell and the price they are willing to accept. Transactions must be effected on the market through a broker; offers must not be made direct to the company.

* * * *

At a meeting held at Portland House on the 23rd February, the shareholders of the National Diamonds, Ltd., authorised an enquiry to be made on their behalf with regard to the position of the Company. Mr. Chas. Short, who undertook the investigation, has reported, *inter alia*, that the concern was placed in compulsory liquidation by Judge Curlewis in the Supreme Court, Pretoria, on the 20th January, 1916. Mr. Hugh J. Orr has been appointed liquidator, but at the date of the report was not in possession of the company's books and could give but little detailed information. The records filed with the Registrar of Companies discloses many changes and re-arrangements of the original scheme of flotation. The venture began in 1910 with a modest capital of £15,000 and increased by what is described as "an amazing process of evolution," to over £200,000, standing after a final manipulation at £50,000 divided into one million shares of 1s. each, of which 866,068 are in issue, representing a nominal value of £44,000. The balance sheet for 1914-15, which period terminated on the 30th September last, cannot be regarded as official or binding, inasmuch as it is not signed by the auditors, who appear not to have been paid for the work already done by them. The company has, it seems, no assets whatever.

* * * *

The Mines Department returns for January show that the total production of diamonds within the Union in 1915 was 103,385·7 carats, valued at £399,810. In the normal years 1912 and 1913 the values were £10,061,489 and £11,389,807 respectively, but in 1914 the value fell to £5,487,194. The Transvaal production in 1915 was 85,678·65 carats, valued at £128,067—almost entirely from the Klerksdorp-Bloemhof alluvial fields: 33,502·26 carats, valued at £126,419. Cape Province yielded 66,471·25 carats, representing £266,198. Barkly West was the largest contributor—54,140·75 carats and £224,810. Production in the Orange Free State was very small—1,240·83 carats, valued at £5,545, all but 200 carats coming from the Boshof district. The totals recorded represent the work of syndicates and diggers, there being only one company at work, in the Pretoria district.

* * * *

A memorandum has been drawn up by a committee organised to direct public attention to the effect of science on war. The committee look forward to taking further action in the near future, and would be grateful to receive suggestions and promises of help. Communications should be addressed to the Secretary, Re-organisation Committee, 107, Piccadilly, London, W. The manifesto, which is signed by many eminent members of various branches of science, points out that not only are our highest Ministers of State ignorant of science, but the same defect runs through almost all the public departments of the Civil Service. It is nearly universal in the House of Commons, and is shared by the general public, including a large proportion of those engaged in industrial and commercial enterprise. It goes on to say that our success now, and in the difficult time of re-organisation after the war, depends largely on the possession by our leaders and administrators of scientific method and the scientific habit of mind. This can only be effected by a great change in the education which is adminis-

tered to the class from which these officials are drawn. The education of the democracy, which gives its consent to the present state of things, would follow the change in the education of the wealthier classes. At Cambridge but four colleges are presided over by men of scientific training; at Oxford not one. Of the 35 largest and best known public schools, 34 have classical men as headmasters. Science holds no place in the list. The committee urge that eventually the Board of Trade should be replaced by a Ministry of Science, Commerce, and Industry.

* * * *

The Zaaipplaats directors' report for the quarter ended 31st January, 1916, shows that the mill ran on 87 days during the quarter, crushing 8,922 short tons, the duty per stamp being 11'1 per 24 hours. In addition 6,698 short tons of residues were re-treated, while 2,262 tons of overburden were dealt with by the alluvial plants. The output for the quarter amounted to 120 long tons of concentrates, assaying approximately 70 per cent. metallic tin. The results of working show an estimated loss of £411 13s. 4d., excluding Government taxes and directors' fees, made up as follows:—Estimated loss for the three months' operations, £494 17s. 11d.; less adjustments of estimated values of previous shipments, £83 4s. 7d.; loss declared for the quarter, £411 13s. 4d. The average price per ton of metallic tin on which the above figures have been calculated is £167 11s. 8d. Soon after the beginning of the quarter the grade of No. 13 main ore body fell off, and remained low until the latter part of January. The grade has now recovered, and the main ore body continues strong. Development in the camp working has not yet resulted in the discovery of payable ore. A new lease of No. 6 Roodepoort working has been arranged with a view to tracing the extension of the ore body discovered some years ago. During the quarter 8,009 tons of ore was mined and disposed of as follows:—Waste sorted, 1,790 short tons; sent to mill, 8,922 short tons; less taken from reserve, 2,703 short tons; total, 8,009 short tons. 11'31 inches of rain fell on 22 days.

* * * *

Rhodesia, Limited, have made arrangements for the flotation of the Sabiwa. Whether any trouble was experienced with the Treasury authorities is not clear, but registration is to take place in Rhodesia. The capital is £125,000 in 500,000 shares of 5s. each; the purchase price is £62,500 in shares and £25,000 in cash. No shares apparently are to be issued at present, the cash working capital being provided by a loan or debentures of £75,000, repayable out of profits within a period of 15 years. The new company will have £50,000 to equip the mine and bring it to the producing stage. At the last annual meeting the chairman stated that the Sabiwa lode averaged 18ft. in width, and quoted the general manager that "its possibilities were enormous." At December 31, 1914, the estimated total of developed and partly developed ore was 171,541 tons of an average value of 11'7 dwt.

* * * *

The Secretary writes under date March 2:—I beg to advise you the following particulars of development accomplished south of dyke, during the month of February:—West Shaft.—17th level east drive, South Reef: Footage sampled, 30ft.; average assay value, 8'7 dwts. over 47ins. 17th level west drive, South Reef: Footage sampled, 40ft.; average assay value, 10 dwts. over 50ins. 17th level east drive, Main Reef: Footage sampled, 35ft.; average assay value, 11'2 dwts. over 88ins. 16th level east winze, 505ft. east of west shaft, South Reef: Two samples obtained at 55ft. and 60ft., average assay value, 15'1 dwts. over 47ins. East Shaft.—Auxiliary winze, 400ft. west of east shaft.—Few more assays obtained from west and east drives on Main Reef, unpayable.

* * * *

At the recent annual meeting of the Salisbury Chamber of Mines it was stated that minerals constituted nearly 90 per cent. of Southern Rhodesia's total exports, while the amount which both the administrative and commercial side received, directly and indirectly, formed a considerable por-

Rhodesian Mining.

tion of the country's revenue. Despite the abnormal times, the production of gold had increased and working conditions had not been very materially affected. With regard to the Mining Regulations the Chamber had taken strong exception to an arrangement recently made by the Secretary for Mines with the Falcon Mines, whereby the fixed royalty laid down in the Mines and Minerals Ordinance of 1914 had been modified. The Chamber's objection was of a twofold character—to the principle that the head of a department could make such an alteration without the Legislative Council's consent; and to the action being taken in the interests of larger companies to the detriment of the small workers. The Chamber regards the arrangement, and certain others made during the past year, as being *ultra vires*.

* * * *

The speeches of Sir Felix Schuster, at the meetings of the Union of London and Smiths Bank, are always looked forward to with great interest, and his exposition of the present position, given at the last meeting of this bank, was again of a masterly character. His views, and those of the chairmen of other London Banks, should undoubtedly be taken to heart, not only by the authorities, but also by the public at large, both in England and in the Colonies. They have emphasised once more the necessity of national economy, together with a considerable reduction in imports from abroad, if necessary, by means of prohibitive duties on articles of luxury. In this way, only, can a fresh breakdown in the Foreign Exchanges be avoided. Home markets have mostly been good, and the woollen, shipping, and engineering trades, more especially, have enjoyed great prosperity. The crisis will come after the war, and Sir Felix Schuster devoutly hopes that the best brains of the country will consult together, for the purpose of devising the measures which will then be necessitated by the new conditions which are sure to arise, and to agree upon the commercial policy that will have to be adopted. All the chairmen discuss the question of the new War Loan, the issue of which, in all probability, must take place during this half-year, although it might be delayed for a little while by large subscriptions to the Exchequer Bonds. All are agreed that the terms of the issue should be made sufficiently attractive to attract subscriptions from all classes, and also from abroad; and that the question of the deduction of Income Tax should be dealt with, as this is a factor which will have a very considerable bearing upon the success of such an issue.

* * * *

Apart from the operations of the large Transvaal tin producers, there is a field in the Transvaal for the small digger, whose resources run only as far as a small rotary pan. The following estimate has been made by a man who has large acquaintance with this class of work, and should prove of interest to those whose means are limited in the way mentioned:—Say, 6lb. of cassiterite, or 0'3 of 1 per cent. of cassiterite per cubic yard; 10 boys will handle 20 cubic yards per day, and a 4ft. 6in. rotary pan will be able to treat this quantity easily per day. On the basis of 26 days per working month, the output should be about 3,120lb. cassiterite: at 70 per cent. of metal, say, 2,184lb. metallic tin. At £150 per ton this is equal to a value of about £145. The cost of boys would be £20, and for water, cartage, sundries, etc.—the water being more or less adjacent to the plant—allow £10 per month, or a total of £30. This would leave £115, from which the cost of transport and selling would have to be deducted. A fair margin of profit is, therefore, apparent. The probable cost of the plant required has been put at from £50 to £60. The estimate was made with reference to a particular case, but with slight modifications may be taken to represent something about the average under what may be considered as the usual conditions in the Transvaal.

* * * *

At special general meetings held recently in Johannesburg, shareholders in Apex Mines adopted a resolution reducing the capital to £150,000, thereby completing the scheme for the disposal of the gold section of the property to the New Kleinfontein Company. In return, Apex shareholders have

received 150,000 New Kleinfontein shares. When the sale was completed, in June, 1914, it was the intention of the New Kleinfontein Company to raise further capital to increase its crushing capacity, and the directors of Apex Mines then considered it advisable to retain the block of shares as an asset, so that the company would be in a position to participate to the fullest extent in the New Kleinfontein issue. The regulations subsequently imposed by the Imperial authorities governing new issues, consequent on the war, determined the New Kleinfontein directors to abandon their scheme of raising fresh capital for the time being, and, accordingly, the Board of Apex Mines have since reconsidered their opinion and have come to the conclusion that no good purpose is to be served by further delaying the distribution of the Kleinfontein shares. The return of capital to the extent of 10s. per share is, therefore, to be effected by distributing among Apex shareholders the 150,000 fully paid-up shares of the New Kleinfontein Company.

* * *

This company has suffered considerably from the abnormal conditions prevailing during the year. The net profit amounts to only £4,057, as against £18,188 for the preceding twelve months, and the total available balance of £4,151 is carried forward. At June 30, 1914, the investments stood in the balance-sheet at £310,944 and on the present occasion they are valued "at or under cost" at £329,674; but a note appears in the auditors' certificate as follows: "Owing to prevailing conditions we are unable to form any opinion of the value of the company's investments, or of the securities held against loans." It is satisfactory to know that the Cam and Motor is making good progress and is expected to enter the list of dividend-payers during the current year; but the Giant South section of the Giant Mines has proved a disappointment, and operations are now confined to the Cam-Good Shepherd property. Revenue from the Enterprise has been sufficient to meet expenditure; but the Hay Gold Mining Company has been idle during the year.

* * *

The West Rand Consolidated Mines has the remarkably fine record of not having had a single fatal accident during the year 1915. This is all the more noteworthy seeing that the company has the large number of slightly over 2,400 men, of whom about 2,200 are natives, working underground, and the general manager, Mr. D. T. Morton, has received a letter from the Inspector of Mines congratulating him on the extremely satisfactory result. In this connection it is interesting to note that the West Rand Consolidated Mines will win the first of the competitions arranged by the Rand Mutual Assurance Company, Ltd., for the past year, it being the mine which has the lowest accident rate among employees for that year. Up to the end of November only two other mines showed no fatal accidents, but in both cases the number of employees was less than that of the West Rand Consolidated. One of the conditions is that if two or more mines are equal the mine which has the largest number of employees shall be adjudged the winner, so that even if these two mines succeeded in getting through December without an accident, the West Rand Consolidated would win by virtue of the number of its employees. In regard to competition No. 2, the mine is not so fortunate. The prizes in this competition are for the mine showing the highest percentage improvement on the mine's own death-rate, calculated over the previous three years. The mine has been comparatively free from any serious accidents during the past three years, and its average is thus small. It follows that in this competition the mine has no chance of success, seeing that it cannot reduce its death-rate to lower than zero against mines which, during the preceding three years, had a heavy death rate, and this year have been more immune from accidents. It will be, if possible, in a worse position next year if the competition is carried out on the same lines.

TOPICS OF THE WEEK.

THE PREMIER MEETING.

THREE points stand out in the speeches at the annual meeting of the Premier Company, reported fully in another part of this issue. First, there is the question of amalgamating all the diamond producers. It may be remembered that the reference in the annual report to the need for closer co-operation between producers was interpreted in these columns as foreshadowing nothing short of a big combine of the diamond mines. The idea was ridiculed in some quarters, and received with scepticism in London. The remarks of the Chairman, Sir Thomas Cullinan, on the point, though rather colourless, leave no doubt that a merger is contemplated, but that the difficulties that stand in the way are not lightly regarded. Sir Thomas talked about the necessity for establishing "more complete co-operation among the great producers." Whether this co-operation is to be achieved by a fusion of interests or in some other form was, he said, a matter for the future. Then he added significantly: "Something has to be done. The difficulties are great, but not insurmountable. The question is receiving the most earnest consideration of the board, and I hope shareholders will take this opportunity of expressing their views on the policy to be followed by the board to bring about the desired end." He added that he did not think it would be wise in a matter of such delicacy at this stage to comment on the discussion that has been taking place in the Press on this more important matter. If this means anything at all, it means that the Premier people believe that their interests would be served by an amalgamation of producers, but they do not want to incur the responsibility for initiating the scheme. The fact is that, rightly or wrongly, the term "amalgamation" seems to have acquired so sinister a significance in South Africa that even clear-headed business men seem to bow to the popular prejudice evoked by its mention. And it might be objected to as scarcely fair that the board should ask shareholders to give a lead on admittedly so delicate a question. Shareholders in the various companies affected have, we believe, an open mind on the matter. If the merits of a complete fusion of interests can be shown they will, doubtless, willingly give their consent to the step, without being deterred by any parrot cries of "Kimberlization" of the diamond industry. The income tax and the alleged threat of an export tax drew forcible but not undeserved condemnation from Mr. Ross Frances. His case against the mulcting of the company in income tax seems to us logical and convincing. It is to be hoped that the forthcoming debate on the Budget will see this grievance ventilated in the Assembly, and give Parliament an opportunity to right an undoubted wrong. As for the threatened export tax, we cannot quite understand how the threat ever came to be taken seriously. Never was the moment for such a tax more unpropitious; and the whole proposal seems to have no more tangible basis than the imagination of some anonymous newspaper correspondent. The rumour started with an obscure reference in the *Financial News* to the receipt by some unknown person in London of a cable stating that the Union Government contemplated putting a ten per cent. export tax on diamonds. The enterprising writer of the diamond notes in that paper thereupon elicited the opinions of some unspecified people in the diamond trade, who expressed themselves as more or less indifferent to the alleged proposal. Their nebulous views on a nebulous supposition were forthwith cabled out here, and given entirely fictitious importance as purporting to represent the considered views of the diamond market on a cut and dried proposal. No wonder the Premier people were mystified. It is difficult even yet to say how little or how much is behind the matter. At any rate Mr. Ross Frances had no difficulty in showing how foolish and unjust such a tax would be. Nothing more, we trust, will be heard of the idea, and directors of diamond companies can again rest quietly in their beds at night. Nevertheless, the clear-cut exposition by Mr. Ross Frances of these taxation anomalies,

real and threatened, comes at an opportune moment. The Budget proposals will be up for discussion in a few weeks' time, and fortified by such forcible pleading, members who want to do the right thing will thus find sound arguments ready to hand.

THE COAL POSITION.

It cannot be said that the discussion in the House of Assembly of the questions at issue in the coal industry has helped very much. Mr. Quinn brought up the grievance of the industry against the railway, in his characteristically forceful manner, and elicited a reply from the Minister of Railways that cannot be described as otherwise than unsatisfactory. Mr. Burton held out no promise of relief in regard to the threatened withdrawal of the rebate, and the whole tone of his reply would seem to promise little immediate amelioration in the position. According to the *Cape Times's* detailed report of his speech, Mr. Burton said:—

The Railway Administration has for years past been faced with the difficulty of coping with traffic which comes in fits and starts, and although the utmost efforts have been made to obtain the necessary supply of trucks, it has been exceedingly difficult to cope with the various obstacles in the way. The reason for the shortage is the war. We have a shortage of engine power, which prevents the trucks being worked to their full capacity. The shortage of engines was due to the arrears in repair work caused by the strike, rebellion, and the S.W.A. campaign, when the larger shops were almost entirely at the disposal of the naval and military authorities. We have had to contend with inferior water supply, shortage of tarpaulins, and the practical impossibility of getting them renewed. Tarpaulins cost 100 per cent. more than they did before the war. Hon. members do not know the strain that was imposed on the railways by the strike, the rebellion and the war. They do not know how the Administration has had to try to pull through and yet to keep up the supply of trucks for the ordinary traffic. Another important reason for the shortage is that the trucks are detained improperly at the various ports—principally Delagoa Bay and Durban. The average daily tonnage under load at Durban was 13,880, the truck hours lost at Durban through delay being 450,000 for 12 months, and at Delagoa Bay 75,000 for six months. I almost agree with the hon. member for Teyateyanan that the expansion of the coal industry will almost be better for the country than the gold industry. The High Veld of the Transvaal is to all intents and purposes one big coal field, and I believe in the near future we shall have an enormously increased trade expansion. The demands of the coal traffic have been most unusual. From the Natal Collieries the traffic was: In September last, 778 tons; October, 930 tons; November, 2,650 tons; December, 6,657 tons; and January, 13,271 tons. From the Transvaal collieries: In September, 5,663 tons; October, 8,400 tons; November, 8,616 tons; December, 14,400 tons; and January, 25,400 tons. (Mr. T. Boydell: Per day?) The Minister of Railways and Harbours: Yes, I suppose so. (Sir E. H. Walton: Is it not per month?) The Minister of Railways and Harbours: Everyone seems to know all about it. (Laughter.) But whether for the day or the month, the figures show the great increase. Continuing, Mr. Burton said that as compared with the previous year we had 2,000 additional miles of railway to work. The Administration could not foresee that it would have to provide for the management of the whole of the railways in South-West Africa, the whole of the rolling stock of which had to be overhauled. In 1915 the Administration placed in service 91 engines and 1,614 trucks for the 3ft. 6in. gauge. It had under construction or order 80 engines and 2,000 trucks of 3ft. 6in. gauge. The shortage of trucks was not confined to South Africa, but was felt all over the world, owing to war conditions. It was even felt in Germany. The position had been very much improved, and had enabled the Transvaal and Natal collieries to deal with their own demands.

That this by no means disposes of the matter is shown by recent speeches of colliery company chairmen. For instance, speaking at the annual meeting of the Dundee Coal Company, Mr. Otto Siedle said it was well known that the coal industry was receiving a considerable fillip at the present time through the fact of steamers being diverted from the Suez Canal and coming round this way. So far as he could make out, although they were very busy, it was only a thin trickle of the stream at present which would increase and become a larger channel of business during the year. In view of that the question of the resources of the coal industry was beginning to loom rather large, and last week, accompanied by other representatives of the Natal and the Transvaal coal industry, he went to Capetown at the request of the Government to discuss the coal situation. The question for discussion was mainly how the largely increased

demand for bunkers could be met and the restriction of export as much as possible with that end in view. He did not think he was committing any breach of confidence in stating that the latter request came from an Imperial source. Mr. Siedle went on to point out several inaccuracies in Mr. Burton's figures. The Government, he said, in conclusion, would have to get away from only thinking "retail." As far as the South African coal industry was concerned, the shortage of trucks often resulted in their being unable to do business for which they had made arrangements. It is clear from this that the railway people will have to take the demands of the coal industry more seriously, and the latter, on its part, must keep hammering away at the need for redress of its legitimate and reasonable grievances.

MINERAL RESOURCES OF SOUTH-WEST AFRICA.

THROUGH the courtesy of the author, we have received an advance copy of "Geological Survey Memoir, No. 7," on the Geology and Mineral Industry of South-West Africa, by Dr. Percy A. Wagner. Dr. Wagner, who, it will be recalled, was the other day elected President of the Geological Society of South Africa, has made a close study of the country formerly known as German South-West Africa; and the issue of his detailed, painstaking and highly informing report reflects great credit on the enterprise of the Department and of the Government. In his introduction, Dr. Wagner says that, owing mainly to the rapid development of its diamond industry, the value of the mineral production of South-West Africa, which in 1906 was practically nil, in the year 1913 amounted to £3,517,371, thus actually exceeding by a considerable margin that of Southern Rhodesia for the same period. It must, however, be pointed out in connection with this truly remarkable advance that the 1913 aggregate was abnormal, as there was during that year an over-production of diamonds. Only some 87 per cent. of the stones recovered were as a matter of fact sold, and in 1914 the diamond output was to have been reduced by almost 30 per cent. Even so, if the returns for the first six months of 1914 of the principal mines and diggings in the Union be taken as a criterion the territory would still have ranked next to Griqualand West, the most important diamond-producing region in the world. Apart from the Luderitz Bay or Angra Pequena diamond fields, the rich copper and lead deposits that are being exploited with conspicuous success at Tsumeb and several other localities in the Grootfontein district, the Khan Mine and one or two lesser copper occurrences, prospecting and mining operations in South-West Africa have not so far realised expectations. The country has, however, up to the present received very little attention from experienced prospectors, and when it is remembered that the Luderitz Bay Diamond Fields were accidentally discovered in an area that had been examined by geologists and miners and condemned as valueless, and that immense tracts, favourable geologically to the occurrence of mineral deposits, are still virgin ground, there is every reason for optimism in regard to its potential mineral wealth and resources. A highly interesting chapter is devoted to economic geology and the mineral industry. Neither gold nor coal has yet been discovered in workable quantity; but copper mining provides, after diamond mining, the most important industry of South-West Africa. Copper deposits occur, and have been opened up at quite a number of widely-separated localities. The various occurrences which have been examined may be classified as follows: (1) Deposits in the Otavi dolomite, in which copper is associated with lead; (2) magmatic deposits in which copper minerals occur as segregations in pegmatite, apatite and granite; (3) pegmatite quartz veins; (4) quartz veins; (5) impregnation deposits in mica schist. Tin and copper are dealt with in considerable detail, and we hope to print interesting extracts from Dr. Wagner's account of these base metal occurrences in the territory. This hasty notice will, however, suffice to indicate the value of Dr. Wagner's comprehensive review, which brings together in clear and admirable form all the available knowledge of the mineral resources of the country.

OIL SHALES IN THE UNION.

A Vast Area of Oil-Yielding Possibilities—Uncertainty of Existing Knowledge—The Necessity for Cautious Investigation.

At the end of his report to the Government upon the "Petroleum Prospects of the Union of South Africa," Mr. E. H. Cunningham Craig said:—"All the evidence to hand at present leads to the belief that the oil shale industry has good prospects of proving successful, and I would urge that no effort should be spared to ensure that a fair test of its possibilities be made." It was suggested that the Government itself should take some hand in this undertaking, at least to the extent of stimulating private enterprise. This might be done in several ways. For instance, those who controlled oil shale deposits could be notified that if they would mine and transport a 10-ton sample to the railway, the authorities would do the rest in the way of shipment and testing upon a commercial scale in Scotland. The mapping of the seams upon a large scale was indicated as being a useful procedure, and also that the Government should publish the results of the commercial tests made. The report was handed in towards the end of 1913, but as far as we are aware no official steps have been taken to carry out any of the suggestions made by Mr. Craig. If anything in this direction had been contemplated it is not unlikely that Dr. Humphrey, who has been making a geological survey of the country in the vicinity of some of the most interesting oil shale occurrences, would have been instructed to give special attention to the matter. By this time, quite a useful quantity of information could have been obtained regarding an asset of some importance to the country. Apparently little or nothing has been done, and certainly no useful data have been published. The affair has been left, it would seem, to private enterprise entirely, and, as usually happens in connection with anything outside the bounds of the Witwatersrand and one or two other thoroughly proved and "fashionable" mineral areas, private enterprise has not found the game quite good enough. This is scarcely to be wondered at. In the first place, most people here look at an enterprise primarily from the Stock Exchange and quick-profit point of view, and the possibilities of an oil shale industry in this country are not sufficiently apparent to commend themselves greatly to the market. On the other hand, those who have taken the trouble to enquire more or less thoroughly into the prospects of such an industry, have satisfied themselves that it is one that cannot safely be undertaken without careful calculation. There are vast areas of shale in the Union which are capable of yielding oil in profitable quantities, but practically nothing is known of the conditions, geological and otherwise, associated with these occurrences. Some of the best of those referred to by Mr. Cunningham Craig were described by him as being defective in the matter of thickness, and, generally speaking, both the thickness and quality of seams vary from point to point wherever they are found. Systematic prospecting and careful sampling are, therefore, necessary before any reliable report can be made upon the prospects of an oil shale deposit. Before this work can be decided upon, it is prudent to consider the cost of treatment and marketing, assuming that conditions as regards quantity and quality are satisfactory. The capital required for the erection of a plant upon an adequate scale is pretty considerable, and competition of a vigorous kind has to be faced in the final disposal of the manufactured products. In various ways, then, the organising of an oil shale industry in this country is a matter that demands solid financial backing and intelligent control from first to last, and unless these things can be provided for at the outset, it is not worth while spending time and money in preliminaries. If the business can be handled soundly the prospects offer considerable inducements to capital, for the quantity of mineral oil products which are annually imported into the Union and neighbouring territories is very considerable, and is, of course, likely to be increased.

OIL SHALE AREA.

The area over which oil-producing shale has been found within the Union embraces a wide extent of country, from Middelburg, in the Transvaal, to the valley of the Umkomas, in Natal; over a width which is as great in one part as the distance between the Wilge River and Swaziland. The discoveries made over this vast area are, however, scattered and isolated, and may be regarded as very insignificant samples of the whole, so that it is impossible to say whether the proportion of profitable shale to what is practically unworkable is great or small, or to make even a rough estimate of the probable contents of any particular part of the total area. As has already been remarked, it is to be expected that the shale beds occur in patches of varying thickness and quality, and only systematic boring, or prospecting by means of shallow shafts, where possible, can be relied upon to provide satisfactory data for calculations of quantity and quality. As an instance of this, there may be cited the case of a property in Natal, which was "turned down" by a Rand house on the strength of a report based upon outcrop sampling. Later examination of the same property by means of deep cuttings into the hill slopes, and some shafts which penetrated a full section of the shale seams, gave very different results from every point of view. It may happen, therefore, that some of the prospects referred to by Mr. Cunningham Craig as being unsatisfactory from evidence obtained at the outcrops may prove to be of much greater value when more complete data are obtained. On the other hand, they may, in some instances, turn out to be of considerably less value. Surface examination is not to be relied upon at all in the investigation of an oil shale occurrence. It appears that most of the shales referred to in Mr. Cunningham Craig's report are either of only moderate thickness or too thin to be capable of economic handling. The best widths seem to have been obtained in the Utrecht district of Natal, and here, according to later observations also, the shales show extensive development, as compared with what is to be found in other parts of the great shale area referred to previously. Even here, however, the variable character of the occurrences, where followed for long distances, is distinctly to be noted. Large patches of shale, comprising many millions of tons of good, workable material are associated with bodies of shale of little or no value. For example, a width of, say, 30ft. of shale, containing oil-yielding compounds in greater or less quantity throughout, may comprise several seams of different quality, of which one only may be a profitable proposition. The lower and more arenaceous grades may, and generally do, outcrop more prominently than the others. The seams in the Impendle district of Natal were mentioned by Mr. Cunningham Craig as being, as far as he could ascertain, the most promising of any that he had examined. In view of what has so far been said, however, it may be doubted whether his views can be accepted as being at all final, and later reports, of an unofficial and private kind, that have been based upon more recent data, lead one to assume that he would be inclined to modify his earlier opinions upon the subject.

PROSPECTING ACTIVITY.

For reasons which have already been indicated, no doubt, prospecting activity in the oil shale area is not very apparent at the moment, although several persons have been busy for months past in acquiring and extending options over shale farms. The only systematic investigations of which we have any knowledge are those which are being carried out by a London company in the neighbourhood of Wakkerstroom. It may well be understood that those associated with the work are not permitted to divulge the results so far obtained by them, but all the available information goes to show that the examination is being made thoroughly and carefully. The development and working of the properties concerned, to-

gether with the treatment of the material mined, and its distribution, will demand a large amount of capital; but if reports are satisfactory there is no reason to doubt that the money required will be forthcoming. If, on the other hand, the results of the enquiry are not such as to justify further expenditure a wide stretch of country may be looked upon as having been turned down after fair and impartial exami-

nation. It is more than probable that other parties who have acquired interests in the district are marking time until these results become known to the public, as they undoubtedly will later on, and in the circumstances the waiting policy appears to be a wise one. At the same time, it must be remembered that other districts have possibilities that are not to be altogether judged in the light of evidence from the Wakkerstroom neighbourhood.

THE RECORD OF THE McNAMARA SHOT DRILL.

Evolution of Modern Shot Drill of Considerable Achievement and Promise.

MR. A. McNAMARA, of Shot Drill fame, has been engaged in the boring business for over 25 years, and has devoted a good deal of time and money in endeavouring to find means of meeting and overcoming successfully the numerous difficulties incidental to boring in various formations and under different circumstances. From years of practical experience, he has learned the cost, the ever-present risk of serious loss and the difficulty of closely supervising diamond drilling operations. He has watched with close interest the progress made, and the results obtained, with Percussion Drills, using solid steel rods, tubular rods and wooden rods. The Percussion Drill (cable system) has also engaged his attention for a considerable time. He is also thoroughly acquainted with the details and workings of the "Water Flush," or Hydraulic Rotary System of Boring, and the respective limitations of these methods of drilling have been impressed on his mind.

THE THREE SYSTEMS.

Up to 10 or 11 years ago the three systems above-mentioned were kept, more or less, in water-tight compartments. There was no over-lapping, so that the advantages of one system were of no benefit to the working of the others. The position then was briefly as follows:—Diamond Drills would bore the hardest rocks, but were limited to holes of small diameter. They were of no use for water boring, and unless extreme care was taken by skilled operators results were practically valueless when testing coal or other friable measures. Percussion Drills would bore large holes quite well in easy formations, but would fail to bore through very hard rock satisfactorily or at reasonable cost. The Hydraulic Rotary, or "Water Flush," System is the most rapid boring system known in alluvial deposits, running sands or loose material, but quite useless for boring hard rock.

DRILL DIFFICULTIES.

The different types of drills selected by engineers for practically similar work, indicate how difficult it is to determine from surface indications just what type of drill is most suitable for the work. This difficulty becomes insurmountable when we find, as we often do, in one bore-hole formations in which all three systems could be used in turn, and each in its particular sphere have distinct advantages over the others, both in working rate and running cost. For example, consider a hole to be bored through the following formations:—Overburden composed of soil, and alternate layers of gravel, clay and running sands, from surface to 150ft.; shale, from 150ft. to 500ft.; hard dolomite, from 500ft. to 750ft.; sandstone, from 750ft. to 1,200ft. A six-inch hole is required, core would be very desirable, but cost is the first consideration. The 150ft. of overburden could be lined out with the hydraulic rotary in one day. With a Diamond or Percussion Drill the running sands would give trouble, and it would probably require from one to three weeks to put lining through the overburden with either of these drills. For boring a hole, six inches diameter, in shale, the percussion (cable) drill would be most economical. In the 250ft. of hard dolomite, the Diamond Drill alone could be depended on to get through.

The Percussion Drill in the hands of the average operator would fail in many instances to get through this stratum. The results obtained in attempting to bore through hard rock

with the Hydraulic Rotary, using Shot or Adamantine, would not be satisfactory. It would be like going back to the crude Diamond Drills of forty years ago. In the Sandstone the Percussion Drill would again be the most economical of the three. These conditions, varied as they are, will be found in nearly every district, so that no type of drill available up to about eight years ago was really suitable to start and complete a hole or series of holes to the best advantage. There was generally some trouble, occasionally serious trouble, and failures causing much dissatisfaction and sometimes actually discouraging boring altogether. No real improvements had been made in any of these boring systems for over 25 years. To each individual maker his drill was good enough. An operator using one type of drill was, or appeared to be, satisfied with it, and in this country at least, it seemed to be a matter of finding suitable work for the drills in existence, rather than adapting the drills to the work required.

POSSIBILITIES OF THE SHOT DRILL.

This was neither a satisfactory nor a sound condition for the boring business to be in, and to make a real and lasting improvement it was necessary to find an inexpensive, yet efficient, boring agent to replace diamonds. This would open the door to great possibilities and make it possible to combine the good features of all three systems in one boring plant, without sacrificing anything with reference to working rate and running cost. In his experiments, Mr. McNamara found that Chilled Shot appeared to offer the greatest possibilities. It took some years to find suitable designs for the machines and equipment in order to ensure uniform and reliable results in Shot Boring, but they have been successfully evolved in the McNamara Shot Drilling Outfits. Since 1908, the firm has been making drills in the Transvaal for boring holes for water, prospecting, sandfilling, or for any special purposes as occasion required. They have proved in actual working that these drills are superior in design and general efficiency to all others, no matter where or by whom they are made. In the McNamara Shot Drilling Plants, there are embodied the outstanding and desirable features of the three principal systems of boring, as follows:—They bore the hardest rocks as well as Diamond Drills. They bore holes of as large diameter and as cheaply as any Percussion Drill. They will sink pipes or lining tubes through alluvial deposits, running sands, etc., as quickly and effectively as the ordinary "water flush" or Hydraulic Rotary Drills. They recover excellent core samples from all rock formations, thus giving accurate and reliable evidence of the Strata bored through in every hole. The superiority of the McNamara Shot Drill has been proved up to the hilt, not by advertisement, but by solid practical work under most varied and difficult conditions.

A RECORD OF RESULTS.

The firm has bored successfully in refractory formations where Diamond Drills were found too expensive, and where Percussion Drills had failed entirely. They have bored many miles of six-inch and seven-inch holes for testing coal-fields, from all of which most satisfactory core samples were obtained. In some instances, where fields had been previously bored with other drills, the records of such former boring were both inaccurate and misleading. For sand-

filling they have bored six, seven and eight-inch holes of depths varying from 400 to 1,800 feet, and all, without exception, were completely satisfactory. They have also completed holes which were partly bored by other drills and abandoned in difficult or very hard ground. In no instance have they experienced any serious trouble. The firm has in South Africa the most modern and up-to-date Diamond and Percussion Drills, and for the past eight years they have been in open competition with these. The result is as stated:—The McNamara Drill has a clean record and has made good everywhere. In the McNamara Shot Drills, or Universal Boring Plants, is found the efficiency of the Diamond Drills for boring through hard rock, without being limited to holes of small diameter. The cost of diamonds is saved, likewise the skilled labour for setting them and the

constant risk of serious loss of diamonds which keeps the running costs high. The portability of the modern Percussion Drills is secured without their limitations or liability to serious trouble in refractory formations. The firm has never abandoned a borehole and has always reached the full depth required. The full advantages of the "water flush" Hydraulic System of boring in alluvial or loose deposits is obtained by using a specially-designed rotary table which is inter-changeable with the regular boring head. Although there are thus three drills in one, the outfits of equal depth capacity are no heavier than any one of the three drills mentioned. The McNamara Shot Drills are as portable as any and more portable than many. They are well made, conveniently arranged and simple to operate. Every boring problem placed before the firm has been solved in a satisfactory manner, and at reasonable cost.

CHEMISTRY, INDUSTRY AND THE STATE.

Tribute to Dr. Juritz.

The following is an extract from the current issue of the *Journal of Chemical Technology*, the official organ of the Institution of Chemical Technologists, London:—

We desire to call special attention to the presidential address delivered by Dr. Juritz to the South African Association of Analytical Chemists, which we have reproduced in full in this issue. The address is a remarkable one, and should be read from the point of view of its general application to the chemical profession throughout the Empire and not in relation to South Africa alone. In their bold statement of fact and clear and reasoned appeal to the profession and the public, Dr. Juritz's remarks present a striking contrast to the colourless platitudes on the same subject which have been so mercilessly inflicted upon us here by certain academic chemists since the outbreak of war. There is hardly a paragraph which does not deal trenchantly with some matter of importance demanding the consideration both of chemists and the Legislature. The address is an unbiased and scathing indictment, on the one hand, of the neglect of science by our Governments, and, on the other, of professional apathy and ineptitude. Dr. Juritz makes it clear that the State must bear no small proportion of the blame for past follies, but he also indicates plainly that chemists on their part owe a duty to the State. The Legislature and the public must be educated to appreciate the value of science and the task of instruction can only be undertaken by scientific men themselves. United effort is called for, and to secure this professional co-operation in its best sense and dictated by a high aim, is the first essential. In respect to the duty of chemists to their profession and the relation of the latter to the State, the Institution of Chemical Technologists and the South African Association are in the fullest agreement. Of all the chemical societies these two bodies alone have recognised what is demanded of the chemical profession, and that its organisation and efficient administration are imperative if the confidence and respect of the public are to be gained. The future of chemistry as a profession, properly understood, and the position that it may ultimately take among the recognised professions will be determined entirely by the degree of loyalty exhibited by its members to each other and the consequent benefit derived from combination and mutual support. This is the fundamental principle that chemists have to grasp. Until they accept it, and act upon it, there will be no effective co-operation between science and industry, and no adequate recognition of scientific service.

"We should unquestionably gird ourselves to the adoption of an educative policy, for, until that is done on well-defined lines, we shall achieve little else. To my mind, some of the points in our propaganda should be: To urge reciprocity of benefit between the State and the chemical profession; to demonstrate to the public its indebtedness to the industrial chemist; to seek unity of effort as a profession in all our aspirations; to hasten the incorporation of the chemical profession."

In the concluding paragraph Dr. Juritz concisely sets forth what the profession has to do, and at the same time summarises what has not been done. The onus of taking action is in the first instance

on chemists themselves. They must put their house in order. They must cast off the self-constituted "leaders" who have so wantonly failed in their trust, who, in all the years that have run to waste, have never attempted to uphold the dignity of the profession, or to bring home to the State, the public, or the manufacturer, its importance to national welfare, but who have placed before themselves the personal benefit of the individual as the highest ambition to which a professional man can aspire. Chemistry as a profession cannot exist when one branch affects to look down on another as inferior, when there is no sympathy between the college and the works laboratory, and when those who have succeeded in attaining a competence are indifferent to the struggles of their colleagues, beginning their careers, to obtain even a living wage. Above all, there must cease to be the invidious distinction hitherto made between academic and industrial chemistry, which has resulted in the chemical profession being divided against itself. The loss of so many industries which should be ours, and the confusion in which the war has found us, is directly due to the supercilious attitude of superiority that the academic person has always adopted towards "the mere" technical chemist. It is impossible to look for unity of purpose and action under such circumstances. Both the academic and the industrial chemist have to realise that they are members of the same profession, and the former particularly must try to learn that, as a teacher of the future generation and as a professional man, he has a duty to his country, and that sometimes more is expected of him than the advancement of his own interests and the satisfaction of his personal ambition.

We have received the proceedings of the South African Association of Analytical Chemists for the year 1914-15. The report of the Council will be instructive to those of the non-possimus school in this country, since it shows what a professional body, however young, can accomplish which possesses and follows a definite policy. The work of the year proves necessity for the existence of the Association, and we heartily congratulate our South African colleagues upon the energy they have exhibited in their determination to manage their own affairs.

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THE DEBATE ON THE FAR EAST RAND.

State Exploitation Asked For—Interesting Discussion in House of Assembly—Truth About the Government Areas—Mr. Kotze's Forthcoming Memorandum.

There was a debate on the following motion, which was moved in the House of Assembly last week by Mr. H. W. SAMPSON:

That, inasmuch as the production of as much gold as possible within the British Empire is essential to our ultimate success in the present war, and in view of (a) the very decided opinions expressed by experts and financiers that the gold-bearing areas on the East Rand are rich enough to warrant exploitation, and (b) the fact that the surrounding and contiguous mines are giving excellent returns, this House is of opinion that the Government should consider the advisability of the State undertaking, as early as possible, the winning of gold in the said areas.

"Our only object," said the hon. member, "is not to defeat the Government, but to get an expression of opinion on this, which we consider a very important matter, especially at the present time. It has been mentioned in this House a good many times, but no action has been taken."

Mr. Sampson added that he would confine his speech to three points:

- (1) The economic value of gold from the British standpoint;
- (2) Its economic value from the standpoint of South Africa;
- (3) The advantage of the State working these areas on the Rand with white labour in preference to the present system of private exploitation by means of coloured labour.

As to the second point, Mr. Sampson declared that South Africa would get very little credit in the markets of the world if it were not for its gold production; whilst as regards the third point, he said they wanted this brought about for the benefit of the people in relief of taxation. Mr. Sampson quoted figures to show that white people were not getting the benefit of the gold production of the Rand which they used to do, and declared that under State ownership the public would get greater protection and the investor would get more safety from the State than he did at present. Another advantage from the State working the areas was their experimental value. From that point of view it was desirable they should have mines in order to conduct experiments at the expense of the State, and controversy would rage for an infinite period until such experiments were conducted by some impartial person. The utilisation of white labour would absorb many of the poor whites, and if the State worked the mines many things which existed to-day would not be tolerated.

Mr. J. L. SCHURINK (Lydenburg) said he considered many of the points made were strong, and he wished to throw a little light on the question of increased production in other areas, notably Lydenburg, and to see that such action would tend to increase the gold production so essential to the advancement of the great war. This could be brought about by a more lenient law, and taxation should be the only basis of results and not of development. In addition such action would give occupation to many poor whites, and would also assist many suffering from miners' phthisis.

MR. PATRICK DUNCAN'S WARNING.

Mr. PATRICK DUNCAN (Fordsburg) said the mover had asked the House to consider an academic problem and to pronounce on the question of the State working mines on the far East Rand. While the war lasted neither the State nor private individuals could find the money with which to work these mines. The House should be very careful before coming to the conclusion that the Government ought to go into the field as a gold miner. It was absolutely unreasonable to ask the House to pronounce on a question of this kind when members were largely in the dark as to what the conditions were on the far East Rand and whether the properties there were worth working. It was of vast importance to the country that these mining areas should be opened up, and the work should be undertaken as soon as conditions permitted; but for the State to undertake gold mining was full of objections from every point of view. To begin with, gold mining was a speculation, and no one could tell without the expenditure of a million, or a million and a half, whether the proposition would be a payable one or not. It was, however, eminently a field for private enterprise. People who put their money into gold mines naturally expected to make large profits, because they ran very considerable risks, and if they made a loss they wrote it off in the expectation that the next venture would be so lucrative as to reimburse them. But the State could not write off its mining losses in this way, and it would be saddled with interest payments for all time. If a man invested money privately in a mine he went into the speculation voluntarily, but it was a very different matter for the taxpayer to be forced—whether he liked it or not—to bear a large burden of debt which might be accumulated through the inefficiency of a mining department under a Labour Government. (Hear, hear.)

That was why the principle had been adopted—a very sound one, he thought—of having the mineral resources of the State exploited by private companies under State supervision, the State participating in the results. The Government had already given out farms in that area under the participation system. He was quite aware that the system led to certain difficulties and the Government had to co-operate with private capital. It was not always easy to

get that co-operation on such terms as to safeguard the interests of the State. The State had to induce capital to come in, and also see that the terms were not too liberal. The Government might find itself faced with the fact that it could not get a fair offer for these areas. People might combine against the State to get these areas at something less than they ought to pay. Therefore, he said that under no circumstances should the State lay down that it should not work these mining areas itself. He did not think the House knew enough of the facts to be able to say whether the State should work these mining areas. He would like to know whether the Government had tried to give out further areas on the East Rand for exploitation purposes, and, if so, what had been the response. Had the Government done anything in regard to the development of these areas by means of private enterprise, and, if so, what had been the result? The House wanted to have some idea of what the mineral values of that area were. He said that the practical thing to do was for the House to have some facts before it, before it passed that motion, and, as he had said before, there was no hurry about it. But the Government ought to lose no time, and he thought they had lost too much time already about the matter. In conclusion, the hon. member moved an amendment to the effect that it was desirable that there should be such State exploitation as soon as circumstances permitted, and that the matter be referred to a Select Committee.

AT ITS ZENITH?

Major Dr. J. C. MACNEILLIE (Boksburg), who supported, said that they had been told by experts that the gold industry was now at its height, and that from now onwards it would diminish. A Commission some years ago stated that the gold mines contributed 60 per cent. of the revenue of the whole country. In the East Rand area they had a most valuable asset, and he believed the Government were doing little or nothing at the present time in order to develop that area. He also believed that it would be in the interest of this country to develop these mineral resources at the earliest possible moment. He agreed that gold mining was speculative, but it was less speculative here than in any other country. He also agreed that they wanted more information about the East Rand, whilst as to the debatable question of the proportion of white labour that could be employed on the mines, he would certainly approve of the State starting a mine—not conducting this area—to demonstrate the possibility or otherwise of employing all white labour on a mine. He strongly supported the suggestion to refer the question to a Select Committee, and seconded Mr. Patrick Duncan's amendment in that direction. (Hear, hear.)

APPOINTMENT OF SELECT COMMITTEE URGED.

Mr. C. F. M. WILCOCKS (Winburg) said he thought they had come to the time when they said "the well is a dangerous one; we must close it." They had reports that the time would come when their gold mines would be exhausted. They had continually heard it urged that the revenue derived from the gold mines should be used for the development of the country. Nothing had been done in this direction. They knew they had a valuable asset in the far Eastern Rand. He wished to see a thorough investigation into the possibilities of the Eastern Rand areas, and, if they proved payable, they should be worked by the State, which should find the exploitable costs. Nothing had been done in the past five years for the development of the country's resources. Until they did something for the development of permanent resources he foresaw very bad times for this country. At Jagersfontein and Koffyfontein large numbers of good men had been thrown out of work. And to-day many of these men had to work at two shillings per day. Why should these men not be employed on the East Rand? As he did not desire to go in the dark, he moved an amendment that all the words after "that" be omitted, and to insert "that a Select Committee be appointed to inquire into the circumstances in connection with the gold-bearing areas of the East Rand, and the desirability and possibility of exploiting the mines there by the Government for the promotion of the permanent welfare of the country, provided that the Government takes no steps to alienate any rights in any of the areas without the consent of the House. Such Select Committee to have the right to call for papers."

Continuing, Mr. Wilcocks said he had heard certain rumours of rights and interests being alienated, and trusted that the matter would be looked into.

MINISTER OF MINES: What rights?

Mr. VAN DER HORST (Wolmaransstad) said the country should derive some benefit from the products of the gold mines, and he hoped that the amendment would be accepted, so that the country would get something better from the mines than a lot of dumps and dust-heaps.

UNWORTHY INSINUATIONS.

The MINISTER OF MINES AND INDUSTRIES said that if there was a Select Committee to inquire into the matter, he hoped that both of the previous speakers would serve on it, if only for the purpose of giving them some slight information, which would be a very good thing for them. The first thing he would ask those mem-

bers before they spoke on such a matter was to read the existing law. The present Gold Law in the Transvaal, passed in 1908, makes provision with regard to areas proclaimed for pegging, and there are three alternatives—throwing the ground open for pegging, leasing the ground for people to work, or working it as a State mine. Those were the provisions of the law at the present moment, and nothing had been done outside the terms of the law. If the hon. member for Winburg lent his ears to "praatjes" outside the House, and repeated them, he would have to substantiate them, and such insinuations were unworthy. With regard to the position at Modderfontein, the terms of the Gold Law had been complied with, and the lease entered into after public competition. There were two or three tenders, and the successful tenderer accepted the Government's terms, which included a super tax, and if the profits amounted beyond a certain sum the Government received an additional share. It was alleged by the company that this super tax would, under certain conditions, work out unfairly to it, and the company asked whether the Government was prepared to revise the contract, but the Government replied no. (Cheers.)

Mr. C. G. FICHARDT: What about the scrap iron contract? The MINISTER OF MINES: What absolute nonsense. (Laughter.) If the hon. member wants to make insinuations, let him get his facts first. (Continuing, Mr. Malan said he absolutely agreed with Mr. Duncan that the question under consideration was at the present moment a purely theoretical one. The Government had repeatedly stated that it was not in favour of the State working of mines, and he repeated that. (Hear, hear.) He did not say that this was undesirable in the last resort, but as a general policy it was not for the Government to work gold mines. The reasons for reaching that conclusion had frequently been stated, and it would be wasting time to repeat them every time the question was brought up by hon. members on the cross-benches.

50 MILLIONS CAPITAL REQUIRED.

After the discussion on this subject in another place last session, he gave instructions to the Government Mining Engineer to prepare a comprehensive memorandum on the whole question, and he hoped to be able to lay it on the table within a comparatively short time. To a very large extent the far East Rand remained an unknown quantity, and prominent mining men differed as to where the reef was. But it was generally agreed that the general development of the East Rand would require a capital of £50,000,000. To listen to some hon. members, however, one would think that if operations were started at once that by Christmas they would have the gold ready mined and in their pockets. (Laughter.) There was not a single area on the East Rand which could be brought to the producing stage within four years. The ground was patchy, and water was a troublesome factor. He did not think the amendment of Mr. Wilcocks would serve the purpose, and as he (Mr. Malan) would like the inquiry to cover all points, he could not accept the amendment. He thought the House would be wise to accept Mr. Duncan's proposal. The Parliamentary approval of contracts was a most difficult question, and no business man would negotiate with the Government if the contract had to be submitted to Parliament for its approval, and the matter thus be held up for months. It would be preferable to deal with the subject in the way in which the Bewaarplaatsen was being dealt with, under which, when the area concerned was not large enough for a separate mine, the Government entered into negotiations with people for working it. Then it was open to Parliament to call for the papers, and if hon. members disapproved of what Government did in the matter, the Ministry would have to bear the brunt. It would be inadvisable, however, to hamper the negotiations by laying it down that they would be subject to Parliamentary approval. Government had not been able to get satisfactory leases for these areas. In conclusion, Mr. Malan said he had no objection to Mr. Duncan's amendment.

Mr. SPEAKER ruled Mr. Wilcocks' amendment out of order on the ground that the first portion covered the same ground as Mr. Duncan's amendment, and that the second portion was virtually a mandate to the Select Committee. A mover could not issue instructions to a Select Committee.

"MUST GET TO WORK."

Mr. J. X. MERRIMAN (Stellenbosch), who welcomed the amendment of Mr. Duncan, said that it was quite necessary to take some steps of that kind. They were asked to invest two million pounds at any rate in a gamble, and anyone who desired to inquire into what they were putting their money was jeered and laughed at by Labour members. On what ground had the motion been introduced? To bring the war to a conclusion! That showed how carefully the matter had been studied! (Laughter.) Government areas had now been worked for five years, and it would take about seven years before they would begin to assist the Empire in that matter: and he hoped that Mr. Sampson did not want a seven years' prolongation of that dreadful war. He merely instanced that fact to show the care they had devoted to the matter before putting a motion like that on the Paper.

Mr. Merriman went on to say that he had listened with pleasure to what Mr. Malan had said; but the only part he did not agree with was that he seemed to say that they must go very slowly. "I agree with him," said Mr. Merriman, "that we must not go without careful investigation and a knowledge of what we are doing, but we must get to work on it somehow or other, because in a few years' time—I suppose it is common knowledge—we may expect to see the gigantic value of gold on the Rand diminish. We may have an interval before these new mines are working, during which the prosperity of this country will be seriously affected."

In conclusion, Mr. Merriman said he hoped that the Committee would inquire into some of the methods by which those very deep shafts (4,000 feet) in some of the Australian goldfields, such as at Ballarat and Bendigo, had been constructed. These mines were worked by workmen and by workmen's money—by weekly contributions from the men, as Sir Abe Bailey reminded him. He thought that if something similar were proposed on the Rand the Government would give it its blessing. (Hear, hear.) The fewer things the Government did the better it would be, as it had got about as much hay on its fork as it could well have. As to the Bewaarplaatsen, to which Mr. Malan had made reference, promises had been dangled before proprietors which had not materialised, and the Government had them at the end of a string for several years.

On the motion of Mr. W. B. MADELEY (Benoni), the debate was adjourned until March 1st.

Entries for the Mine Ambulance Competition should reach the office of the Secretary, Red Cross Society, not later than to-day, Saturday, the 4th inst.

Swaziland Tins.

The following are the results of the operations of this company for the month of January, 1916:—Concentrate recovered, 35,255 long tons; estimated profit (taking the price of tin at £165 per ton), £1,288; to which must be added (being adjustments in respect of previous shipments), £669; total, £1,957.

A meeting of Foster Porter & Co. was held recently for the purpose of submitting a resolution for the sub-division of the shares of £15 each into shares of £1 each. The chairman said that it would be an advantage, as shares of the smaller denomination were more readily dealt in. If this can be done by Foster Porter & Co., it is being asked in some quarters why the Treasury refuse their sanction to the New Modderfontein Company to sub-divide their shares into £1 each?

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RAND METALLURGICAL PRACTICE.—VI.

Discussion of Mr. F. L. Bosqui's Paper—Views of Rand Metallurgists.

THE following is the continuation of Dr. Caldecott's contribution on Mr. Bosqui's paper:—

For its proper treatment, sand should, in any case, be free from slime, to the extent at least that layers and lumps do not exist, but the author is in error in holding that "an imperfect knowledge of classification, or a failure to recognise its importance, made this scheme (i.e., the treatment of sand in the collecting vat) impracticable." That the classification in the light of later knowledge was imperfect is true, but an equally important cause for the abandonment of sand treatment in the same vat as collected was the fact that gold in solution was lost. Quite apart from any accidents due to solution being pumped on to a vat with leaching pipe or overflow doors open to water storage vats, or similar accidents by which gold-bearing cyanide solution entered the mill water, there were the difficulties of removing the gold-bearing cyanide moisture from the inch or so of sand usually left in the filter bottom when a vat is emptied of sand. The cocoanut matting and jute forming the filtering medium were similarly saturated, while the bottoms of steel vats are irregular and a series of solution pools formed. It was only when regular and systematic samplings and assays of mill water were made that these losses of gold were appreciated. I well remember my attempts, in 1899, to remove gold-bearing cyanide solution from the filter bottoms of collector vats by repeated small water washes. Although the washing reduced the loss appreciably, the extra labour and expense were considerable. It was impossible to absorb these washings into the plant as the moisture of discharged residue was the same as collected sand, so the liquid after precipitation was run to waste with consequent loss of water. This solution, by the way, was rendered acid before precipitation on iron or zinc, and the gold recovered in a precipitation plant set aside for the purpose. The mill service water, on the plant referred to, as in most earlier and some existing plants, was stored in earthen dams, and the loss by seepage of gold-bearing water must have been considerable. Although various precautions may be taken against the loss of mill water, such as the use only of vats for storage, and against the introduction of gold-bearing cyanide solution into the circuit water, these only minimize the evil and the fact still remains that the milling will be done in a dilute cyanide solution. The question then naturally arises as to what is the real objection to milling in cyanide solution. I have searched in vain for a pronouncement by the author on this matter, where he is treating an ore yielding so high a proportion of its gold contents by amalgamation and which gold, as he rightly points out, is only commercially recoverable on plates. The real objection to milling in cyanide solution on the Witwatersrand is that since the ore yields so high a recovery by amalgamation, indicating relative coarseness, the treatment of the ore by cyanide only would naturally be prolonged, expensive and imperfect. Should amalgamation be carried out nevertheless, complications due to corrosion of copper plates and dissolution of mercury arise. Both of these metals are subsequently precipitated on the zinc in the extractor boxes and result in base bullion, due to copper. Furthermore, crushing in cyanide solution renders it impossible to obtain accurate screen samples by reason of the presence of dissolved gold; and the cyanide goes on dissolving gold from the sample itself. It is an interesting fact that although a few mines did construct plants to mill in cyanide solution, one of the plants reverted to water, and no responsible engineer or metallurgist has since been bold enough to advise his principals to adopt this method.

H. A. White, Springs, Transvaal (communication to the Secretary).—It is, as the author points out in his valuable paper, a fact, that in many plants the "trommel washings" are about to become eyesores, but the simpler system of pumping the entire product direct to the tube-mill circuit will avoid the extra expense of separation and small-scale

treatment when one considers the relative distance of the points and the proportionately small amount of water. It is a matter of record that in stamp batteries the increase of weight has been developed concurrently with the increased use of tube mills, but independently and on its own merits. The satisfactory duty, excellent running time, and freedom from breakages in the newer mills, such as the Modder Deep, with 2,000lb. stamps, will probably go far in removing some of the conservative prejudices mentioned by Mr. Bosqui. The success of the City Deep trial of the Nissen stamp cannot be entirely attributed to better feed distribution and discharge effects (published experiments on two-face discharge mortar boxes showed no advantages). Attention is directed to the treatment costs given by the author both before and after the increased capacity resulting from the addition of 16 Nissen stamps at Modder B. It will be observed that the only item of cost resisting the tendency to reduction caused by increased tonnage is that of milling, which has risen 1.3c. With reference to the provision for amalgamation in the new plans, it seems obvious that a great loss of head would be eliminated by passing the tube cone overflow over a separate top series of plates, three at the top and three at the bottom, will effect the maximum amalgamation. This plan is followed at the Princess Estate and G.M. Co., Ltd., Modderfontein Deep Levels, Ltd., and Geduld Proprietary Mines, Ltd., but elsewhere reliance is placed upon ample cone capacity and the underflow only is passed over three plates after going through the tube mill, while the overflow is passed direct to the cyanide works; both methods avoid the largely unnecessary elevation of considerable quantities of water, fine sand and slime involved in Mr. Bosqui's scheme. The most economical use of the tube mill is still receiving considerable attention though many points have been eliminated from the field of controversy. The running speed favoured by Mr. Bosqui (28 r.p.m. for the 5ft. 6in. tube) is very close to the point of maximum production—90 grade per horse-power-hour consumed. There is, however, another interesting maximum, which is that of capacity or greatest production of —90 material per tube. This speed, 31 to 32 r.p.m., is the more likely to be adopted as it involves but little waste or power, which is, after all, not the only item of cost. The latest Osborne bar liner coming largely into use has the upright bar held in position on top of instead of between the flat bars, as illustrated in this paper. This allows longer life for the more expensive radial steel bars and the reduction in crevice capacity is reflected in the saving of amalgam caught therein. We are still looking for the ideal liner which must be cheap and durable, have a good grip on the pebble load, be easily and quickly renewed, and cause no locking up of gold in the form of amalgam, in crevices. The tube-mill scoop has now passed the experimental stage and is giving satisfaction, but it would be interesting to know whence the author derives the "sloping line of discharge" from inlet to scoop. The level of pulp is surely as horizontal as in the old tubes, though the height is considerably reduced. The "whole hog" peripheral discharge had only one defender at the early date referred to. The scheme presented for collection and treatment of sand in fulfilment of the author's undertaking to "evolve a simpler method than the filter table" suffers from even graver disadvantages than the other well-known efforts to eliminate the table itself (the patented feature) from the whole system used under that title.

(To be continued.)

NOTICE: To Mine Managers & Others

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Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Another Karroo Coal.

To the Editor, *South African Mining Journal*.

Sir,—In your issue of February 26th, Mr. J. E. Mills Davies suggests that a microscopic examination of the reputed coal should be made by means of a thin section to be taken and examined by a skilled microscopist, such as Mr. Weber, of the Geological Museum. On Thursday, February 24th, at a depth of 20 feet below surface, I took, on the farm Rietpoort in the Karroo (held under option rights by "The Union Fuel and Fertilizer Options, Cape Province"), a sample of coal from a vertical seam about two feet wide. It is my intention to leave some of this coal at Mr. Weber's office, and that gentleman, or failing him, some other qualified man, will no doubt later be able to give to your readers an interesting report on the constituency of the sample. It is more than probable that, although the microscope may prove this to be a true coal, it will be observed that the squeezing of it up from a larger horizontal seam has greatly altered its texture and has even made the recognition of its plant origin a matter of considerable difficulty.—Yours, etc.,

SIDNEY G. HOBBS.

Box 807, Johannesburg,
February 29th, 1916.

Karoo Coal Controversy.

To the Editor, *South African Mining Journal*.

Sir,—Although Mr. Kenneth Austin states in a recent letter that he had followed the letters on the Karroo coal question with interest, it can scarcely be urged that he has grasped the real aim of the correspondence. The real question at issue is whether on the 58,000 morgen under option to the Karroo Coal and Development Syndicate, coal seams of any value under normal conditions exist, or whether these coal fissures may be regarded as a will o' the wisp or a kind of geological freak. If Mr. A. L. Chambers possessed a more practical knowledge of the geology of South African productive coal fields, he certainly would not urge that the workable seams of South Africa may be looked for at the base of the Ecca beds and overlying Dwyka Conglomerates. It is quite correct that nearly forty years ago Dunn put forward that theory and caused much money to be thrown away in prospecting for coal where on geological grounds there was not the remotest possibility of success. During the last forty years much work has been done on the different coal fields in South Africa, but in no single instance has a workable seam of coal been located in either the Cape, Natal, Free State or Transvaal Provinces in the Ecca beds. Large sums have also been spent in Natal in prospecting for coal in the Ecca beds without success, particularly on the Bluff at Durban, and it is much to be regretted that after that experience, anyone else should supply capital for such a hopeless venture on the Karroo, where probably more capital has been thrown away in prospecting for coal in the Ecca beds than even in Natal. No geologist of repute now holds the view that the productive coal measures of South Africa are of Ecca age; they may have done so in the past, but practical acquaintance with the coal fields of either the Transvaal or Natal Province soon shows that such a theory is untenable. This fact in itself ought to be sufficient to show that Mr. Chambers's theory that the coal found in the fissures was probably forced up from below cannot be expected to hold water, and the sooner it is abandoned the better it will be for those who have been induced to put money into the concern. It is impossible for anyone with only a passing acquaintance with the geology of the South African coal fields to differ from the views put forward

by Mr. Mills Davies, and to further discuss the possibility of finding a workable seam of coal at the base of the Ecca and overlying the Dwyka beds would seem to be a waste of your valuable space. With regard to the coal actually found in the fissures, it is much to be regretted that the Syndicate has not first satisfied itself that it possesses any economic value. There are millions of tons of similar analyses to be found in Natal, where it is regarded as of little or no value even when superior in all respects except ash contents to this Karroo fissure coal, and which on a small scale may be found in a variety of conditions in almost every coal field in the world. The coal may or may not be suitable for use in suction gas plants as suggested by Mr. Chambers, but in the face of the small demand for this class of coal no sane person would think of building a railway thirty miles long to work it and place it on the market. Under these circumstances it seems premature and quite uncalled for to discuss, as Mr. Chambers does, the possible working costs and profits. It is absurd, however, to suggest that a vertical coal deposit of this character can be worked at three shillings per ton or delivered at Capetown at a working profit of nine shillings per ton. In conclusion, all that can be said of this fissure coal is that it is an interesting freak of nature and has attracted more or less attention for the last twenty years. It is no new discovery nor does the coal occur in its purest state on the property under notice, as some thirty miles away on another property a similar deposit contains less than one per cent. of ash and has a theoretical calorific value of over 16, without, however, possessing any economic or practical value. Whilst from a scientific standpoint it possesses many points of interest, no mining engineer practically acquainted with coal mining operations, would venture to suggest that the deposit under the surrounding circumstances is likely to be of any economic value.—Yours, etc.,

VULCAN.

Karoo Hydro-Carbon Minerals.

To the Editor, *South African Mining Journal*.

Sir,—It is gratifying to learn from Mr. A. L. Chambers's letter in your issue of last week that the carbonaceous mineral found in veins in the Karroo may be used with success in cooking stoves, on blacksmiths' hearths, and in boilers for the generation of steam, and I regret that he should again think it necessary to emphasize the importance of his discoveries. A fuel suitable for domestic, metallurgical and industrial purposes found within 230 miles of Capetown should meet with a ready sale, and I hope that he and his friends will be able to go ahead with the development of what appears to be an important undertaking from both economic and scientific standpoints. I can assure Mr. Chambers that where there is any likelihood of success I do not wish to discourage the development of any of the resources of South Africa, and far from placing obstacles against mining enterprise in the Karroo, would be willing to assist him as far as possible in obtaining a natural fuel in a district where it will be in great demand. Having, however, given considerable attention to the origin and chemical features of hydrocarbon minerals for over ten years, and having formed a collection which includes representative specimens of practically all the minerals mentioned in this correspondence, I cannot accept Mr. Chambers's statement that the vein deposits in which he is interested come within the definition of coal. Apparently Mr. Chambers now controverts the suggestion that the Karroo deposits were derived from the distillation of shales containing volatile hydrocarbons, and I would refer your readers to the *Mining Journal* of 15th January, in which he wrote:—"Prospecting has established the fact that it comes from below, having by distillation and pressure been forced into the extensive lines

of fissuring where it is now found." This theory is probably correct, and it seems unfortunate that Mr. Chambers should now seek to modify his opinions on the source of the mineral, which undoubtedly originated in a manner similar to gilsonite and other minerals of the bitumen class. I never suggested that the Karroo material was similar in composition to a bitumen compound, and think that if Mr. Chambers had handled gilsonite, albertite or elaterite he would not have given to the differences between the minerals under discussion the prominence noticeable in this discussion. Though there are enormous differences in composition, so far as I am aware all hydrocarbon vein fillings were produced by processes which varied only in detail. A slight modification in the temperature of distillation of any hydrocarbon is apt to produce a very considerable difference in the character of the products. Large quantities of tar, benzol, etc., are produced by the distillation of coal in coke ovens, and I would point out that if the temperature of distillation falls below 500°C. there is an increase in the production of paraffinoid compounds and a corresponding decrease of what may be termed, in non-scientific language, tarry products. It is evident from Mr. Chambers's own statements that the Karroo hydrocarbons were not formed in a manner similar to the material which in legal and scientific circles falls within the definition of coal. As a fuel it may possess excellent qualities, but straw burned in a suitable firebox will generate steam, and though charcoal and camel's dung have been used as substitutes for coal none of these can be termed minerals. Mr. Chambers turns to chemical analyses, and here he does not seem to be more fortunate than in his geological theories of what constitutes a coal. In the chemical classification of coals practically all the leading authorities in Britain, France, Germany and the United States of America decline to consider the percentage of ash and water, and the coals are then regarded as consisting of carbon, hydrogen and oxygen only. I would refer him to the opinions of Gruner, Percy, André, Campbell and Arschinow on this subject. Accepting as a standard coal the Welsh product mentioned in Mr. Chambers's letter, we may disregard most of the items quoted in the analyses. Statements on the calorific value of a fuel obviously give no information on its origin or composition. Specific gravity may be ignored, though the weight of a coal per cubic foot is frequently suggestive as to amount of impurities present in the mineral. Ash may be an admixture of foreign materials, much of which can be removed by handpicking and washing, or it may be so intimately associated with the coal that they cannot be separated on a commercial scale. Sulphur is an impurity which usually occurs in the form of iron pyrites. This may be inseparable from the coal or may occur as concretions of any size in the body of the seam. The moisture present in a coal largely depends upon the conditions under which the sample was taken, and I venture to suggest the high percentages of moisture in the Karroo mineral are due to the samples being taken near the outcrop of the vein. Incidentally, I may mention that for certain purposes an abnormally low ash content has detracted from the value of a coal and in other cases it has been found advantageous to artificially increase the percentage of moisture present in coal. We are thus left with only two items for consideration, *i.e.*, fixed carbon and volatile matter. For purposes of comparison with Welsh coal, I would prefer to take the samples analysed by Mr. A. F. Crosse, of Johannesburg, for it is evident from the figures given that some of the six samples analysed in Capetown contained a fairly high percentage of ash. Fuel containing over 15 per cent. of ash is not usually regarded as of great value com-

mercially. Without percentage additions for elimination of ash moisture and sulphur the relationship is as follows:—

	Volatile Hydrocarbons.	Fixed Carbon.
Welsh Coal	15.79	79.13
Sample A. from the Karroo ...	4.70	91.98
Sample B. from the Karroo ...	5.25	86.64

Mr. Chambers says that by comparison your readers will be able to judge whether he is justified in calling the Karroo mineral coal or not. In view of the fact that the Welsh coal contains three times the amount of volatile hydrocarbons present in the other samples, I should certainly say that the latter cannot be termed coal—slight variations in the hydrogen content produce enormous differences in the character of coals. If Mr. Chambers wished to show relationship between the Karroo mineral and what was recognised as a coal he might have taken for illustration an anthracite from the Saundersfoot district of Pembrokeshire, Wales, which contain a higher percentage of carbon than any other coal with which I am acquainted. The differences here are, however, so great that it would be difficult to prove that the minerals were practically akin to each other. The evidence on the mineral found in veins in the Karroo and in the Riversdale district of Cape Colony suggests that it belongs to the class of hydrocarbons known as "anthraxolites." This designation has been adopted by Chapman in America and Arschinow in Russia for all those minerals which genetically belong to the bitumen class of hydrocarbons, but which may have some physical or chemical resemblance to coal or anthracite. We are dealing with a specific mineral and as anthraxolite is a generic term apart from its unsuitability for commercial purposes, a new title should be introduced for the Karroo mineral. Names are usually derived from places where the mineral was first discovered or where there may be seen the best examples of its occurrence. Can Mr. Chambers adopt some name such as "karrite," suggestive of the locality of origin of the latest source of fuel for the Cape Province. Apart from the chemical side of the question under discussion, there are several remarks in Mr. Chambers's last letter which call for comment, but I will only refer to two of them. He says that the superior quality of bitumens mined in Syria, Barbadoes and Utah never occur in wide veins. I have no knowledge of the two first-named occurrences, but in Utah there are veins of gilsonite ranging up to four or five feet in width. I am not aware that it has recently depreciated in value and a few years ago this gilsonite was worth £8 to £9 per ton; more than sufficient to defray cost of mining and transport by road to railway—a distance of over 100 miles. I should welcome an announcement of the discovery of gilsonite veins in the Karroo or any other part of the Union. With regard to the process by which the vein received its filling, Mr. Chambers says:—"The evidence of forcing up of a substance not in liquid form is clearly demonstrated by lines in the coal in appearance like lines of schistosity or stratification." Is it suggested that the material in the vein filled the fissure from below and that it was introduced as a solid? The vein undoubtedly lies on the line of a fault for from another portion of the letter we learn that there appears to have been a series of earth movements and that the formation on one side of the fissure has been raised six or seven feet above the other. I suggest that the schistosity or whatever markings may occur in the fissure were probably produced by fault movements and not by movements of solid coal. Thanking Mr. Chambers for the information which he has given upon a most interesting subject and trusting that my commentary may be of some assistance to him in the exploitation of hydrocarbon minerals. Yours, etc.,

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WRIGHT'S ROPES.

Rhodesian Section.

A YEAR OF MINING IN RHODESIA.

In 1914 the mineral production of Rhodesia reached a total of £3,870,034, of which £2,800,000 represented the value of the gold output. There were 484 producers; 35 companies produced 67 per cent.; 113 tributors, 16 per cent.; 336 individuals, 17 per cent. Forty mines produced 75.5 per cent. of the output. Companies milled 2,404,235 tons, value 26'10s.; tributors, 575,764 tons, value 26'32s.; individuals, 600,210 tons, value 35'94s. The 40 mines ran various crushing machines, including 492 stamps, 92 Nissens, 26 tube mills, 4 Gates rolls, 4 ball mills, 39 grinding pans and 6 Chilean mills. The native labour employed averaged 36,363 per month. Dividends declared reached £514,800, of which £50,655 was from coal mines and £12,000 from chrome mines. Including tributors and individual mines, profits reached £750,000. The value of base metals produced was £302,791, including coal, £115,099, and copper from the Falcon mine, £50,559. During 1915 the work of the mines was hampered by the departure of many experienced men to the war, by the shortage of machinery and battery spares and by the general rise in prices. Despite these factors the production was well maintained. In 1910 Rhodesian mining had the benefit of a boom, and many new mines were started up with adequate capital and high hopes of large profits. The Consolidated Gold Fields of South Africa has the controlling interest in most of these properties, but so far the results, as regards profits, have been disappointing. The leading mines of Rhodesia are: The Globe and Phoenix, which, despite patchy development values in the bottom levels, has well maintained its output and the value of its reserves, but its prospects are clouded by litigation. The early administrators of Rhodesia unfortunately adopted the American apex mining law. Fortunately most of the ore deposits of Rhodesia have been of simple structure, and so far no serious litigation has resulted from this law. Now, however, a neighbouring company claims the apex rights to one of the richest ore bodies in the Globe and Phoenix mine and an interesting lawsuit is in prospect, as there is no precedent here as to the definition of the terms in which the law is expressed. Though the law is undoubtedly taken from American practice, it is doubtful if a British judge would be guided by American precedents. In August, 1915, 6,245 tons was crushed for a yield of 7,569 ozs. and a profit of £18,000. Ore reserves are valued at about £1,300,000. The Shamva mine is working a large ore body by open quarry and tunnels in a large hill. For the quarter ending June, 1915, 148,202 tons were crushed with a value of £116,575 and a profit of £57,166, working costs being about 8s. per ton. The ore reserves have been reduced from 2,400,000 tons to 1,789,500 tons, valued at 5'43 dwts. The ore body contracts badly in the lower levels, but a crosscut on the 5th level has recently disclosed 40 ft. of ore assaying 6'11 dwts. The plant consists of 56 Nissen stamps and tube mills. Of the older producers the Giant mine is nearly exhausted and milled 5,800 tons for a yield of £3,591 and a profit of £588 in August. The Eldorado mine suffered from a shortening of the ore shoot on the 5th level; two reefs were payable over a total length of about 1,000 ft. On the 16th level the ore body is 140 ft. long, with a value of 12'9 dwts. over a width of 8 ft. The Gaika mine, near the Globe and Phoenix, milled in August 3,264 tons for a yield of £7,168 and a profit of £3,039. The ore reserve is, however, only about a year ahead of the mill. The famous Lonely mine shows a lower grade and a shortened ore body in depth. Ore reserves are 135,226 tons, valued at 14'66 dwts. per ton. On the 12th and 13th levels good values have been found. In August 5,000 tons were milled for £11,492 and a profit of £3,892. The Thistle-Etna, which has been milling about 3,000 tons per month, is now nearly worked out; but a new producer in 1911, the Fred mine, has been milling about 2,000 tons per month for a yield of £2 to £2 10s. per ton. The great disappointments as regards profits have been the mines treating refractory ores.

CAM AND MOTOR AND ANTELOPE MINES.

The Cam and Motor started production with a million tons of ore valued at 40s. per ton developed, and a large and expensive plant for roasting and treatment on West Australian lines was erected after an experimental plant had been run some time. An extraction of 85 per cent. was anticipated. Extractions were at first only about 60 per cent., and the expenditure was increased for additions to the plant. Extraction is now about 70 per cent. In August 12,849 tons were treated for a yield of £20,565 and a working profit of £4,401. On the 6th level the ore body shows some signs of shortening in length and values appear more irregular. The Giant mines have taken an interest in the Cam ore body near the Motor ore body. The Bell Reef Development Co. has a capital of 181,000 shares and owes £54,000, and has erected another expensive roasting plant. The ore takes too long to roast, and an Australian expert is being called in. In 1914, 31,202 tons were treated for a yield of £71,424, showing 82 per cent. recovery, but working costs were £60,096. On the 7th level the ore body is 660 ft. long, assaying 9'4 dwts. over 47 in. Ore reserves are 53,007 tons. The Antelope, with a less refractory ore, treated 4,011 tons for a yield of £8,579 and a profit of £1,990. Costs are 30s. 9d. per ton. On the 12th level the ore body has been developed for 249 ft. assaying 14 dwts. over 61'6 in. Ore reserves are about 50,000 tons. The Golden Kopje has a plant of 60 stamps, 3 tube mills and Burt filter, and treats 12,000 tons per month. The ore reserves are valued at 7'6 dwts. for 290,200 tons, but owing to hanging wall of slopes being soft and caving, the recovery has so far been only about 25s. per ton with a cost of 23s. The Falcon mines work a large ore body showing auriferous copper glance in quartz. This is concentrated in a flotation plant, and concentrates are smelted to matte, which is exported. Ore reserves are 874,000 tons, valued at 49s. for gold, silver and copper. For the quarter ending June, 38,889 tons yielded metals of a value of £81,343, working costs £73,642, working profit £7,700, capital outlay £15,750. As there is a detention debt of about £200,000, the prospect for shareholders in this and the other companies mentioned is not a brilliant one. In the Enterprise district, the Planet, Arcturus and Slate mines have developed about 300,000 tons of ore valued at about 45s. per ton, of a refractory character similar to the Cam and Motor, but the Goldfields Development Co. has not yet raised capital to instal a plant to treat them. Almost the only other large mine of promise is the Sabiwa in the Gwanda district, which has developed 170,000 tons of 11-dwt. ore. Unfortunately, few discoveries of either large or small mines are being made. When the present ore bodies are exhausted, the output must decline. However, in 1914 a prospector near Bulawayo observed a piece of quartz in a hole dug by an antbear and has now a nice little mine producing gold to the value of £2,000 per month. The Wankie coal mines are supplying coal and coke to the Katanga copper smelters.

From the "Engineering and Mining Journal" of New York.

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RHODESIAN MINERAL OUTPUT FOR JANUARY.

Detailed Returns for January.

WE have received for publication from the office of the Rhodesia Chamber of Mines (Incorporated) the following detailed statement of the mineral output for the month of January, 1916, with comparisons and values:—

MATABELELAND.

BULAWAYO DISTRICT—

	No. of stamps. treated.	Tons	Yield. ozs.	Value. £
Abercorn (W. J. Lane)...	5	230	79.34	329
Andersons (Est. R. Barkley) clean up	—	—	12.21	51
Annasona (Matthews & Lunnon)...	3	27	64.00	265
Antelope G.M. (Rhod.), Ltd. ...2B 2P 2T	3,853	1,013.54	4,203	
Do. (slimes) ...	—	3,527	860.89	3,569
Antenor (W. J. Lane)...	5	45	17.84	74
Baltimore (W. E. Hunt) ...	4	250	51.59	214
Blanket (Blanket Synd.) ...	15	288	65.43	271
Bunney's Luck (W. H. Rabbetts)	2	200	65.33	271
Bushey Park (Berwitz & Robinson)	2	140	86.02	357
Camp (Carson M., Ltd.) ...	5	585	127.77	530
Do. (sands) ...	—	345	27.95	116
Carry (Boomerang Synd.)...	1H	274	204.65	848
Do. (sands) ...	—	153	67.39	280
Coquette (W. H. Robinson) ...	2	178	56.28	233
Cottage (Cottage Synd.) ...	4	222	137.61	570
Citron (W. MacKenzie) tailings...	—	—	4.36	18
Donove A (W. K. Early) ...	2	19	17.71	73
Durban (Durban Synd.) ...	2	207	167.85	696
Do. (sands) ...	—	100	99.72	413
Eagle A (Macdonald & Co.) ...	10	1,054	158.34	656
Do. (sands) ...	—	420	38.96	162
Edward (Warren & Guest) ...	5	256	57.91	240
Do. (sands) ...	—	250	20.06	83
Elumba A (E. W. Bosomworth)...	5	25	80.63	334
Excelsie (Excelsie Synd.)...	2	159	113.19	469
Farvic (H. S. Henderson) ...	5	712	247.57	1,050
Do. (sands) ...	—	459	24.52	104
Fred (Trans. and Rhod. Est.) ...	10 2P	1,900	1,011.45	4,193
Do. (sands) ...	—	1,900	225.43	934
Formby (Blanket Synd.) ...	3	81	27.56	114
Frank's Luck (R. Aserman) ...	5	670	69.96	290
Do. (sands) ...	—	255	17.61	73
Geelong (Hogg & Co.)...	10	1,160	208.00	862
Germania (W. Hadingham) ...	2	203	66.84	277
Godwin B (Barrett and Stacey) ...	5	281	113.53	471
Do. (sands) ...	—	230	21.41	49
Great Belingwe (R. C. Boyes) ...	5	500	141.83	592
Do. (concentrates) ...	—	—	9.13	38
Gwen (McDonald & Co.) ...	(10)	136	19.47	81
Intabanenda (Intabanenda Synd.)	5	430	94.12	390
Do. (sands) ...	—	300	18.12	75
Jeffs (Horton & Stewart) ...	3	93	103.15	428
Jumbo (A. D. Hall)...	5	369	87.52	363
Jumpers (J. P. McCay) ...	5	400	204.46	848
Do. (sands) ...	—	210	44.63	185
Kernel (E. Farrer)...	5	390	169.47	703
Do. (sands) ...	—	300	52.13	216
Liberty (M. P. L. Synd.)...	1H	155	12.07	50
Do. (sands) ...	—	110	10.48	43
Lone Hand (Armstrong & Furber)	5	393	131.82	546
Do. (sands) ...	—	310	49.77	206
Lonely Reef G.M. Co., Ltd. ...	20 3T	4,020	574.62	2,382
Do. (slimes) ...	—	4,020	2,150.01	8,913
Mamba (Nicholls & Co.) ...	5	205	71.48	296
Do. (sands) ...	—	110	10.37	43
Matabele Queens Co., Ltd. ...	10	1,820	311.16	1,290
Do. (sands) ...	—	1,820	296.47	1,229
Mayfair (Arbery and Hicks)...	5	280	93.39	387
Do. (sands) ...	—	308	41.95	174
Mission (Emerton & Matthews)...	1H	45	28.71	119
Mons (Challon & Hall) ...	5	35	25.21	63
Mulloch (J. B. Richardson) ...	2	23	22.02	91
Nelly (F. D. Roscoe)...	2H	850	480.70	1,993
Do. (sands) ...	—	240	98.16	407
New Eclipse (J. R. Stewart) ...	5 1T	1,243	299.61	1,242
Nicholson (F. K. Brown) clean up	—	—	82.36	341
Near By (R. Innes)...	4	54	32.44	134
Old Nic (Chart. & Gen. E. & F. Co., Ltd.) ...	15 4P	2,413	536.99	2,226
Do. (sands) ...	—	1,396	144.00	597
Peach A (Peach Synd.) ...	5	230	183.61	761
Do. (sands) ...	—	266	49.61	206
Penzance (Macdonald & Co.) ...	2	250	73.42	304
Do. (sands) ...	—	220	78.76	327
Princess (C. A. Abbott) ...	2	201	36.47	151
Do. (sands) ...	—	200	10.74	45
Prince Olaf (K. Johnsen) ...	5	264	274.84	1,139

	No. of stamps. treated.	Tons	Yield. ozs.	Value. £
Progress (Progress Synd.)...	2	330	53.36	221
Queens West (Cumings & Berry)...	3	230	158.45	657
Do. (sands) ...	—	200	35.67	148
Rex (P. D. Crewe) ...	5	385	81.38	337
Robin Hood (L. Granger)...	5	625	79.18	328
Rubble (J. Gilpin) ...	5	75	8.63	36
Sabi Extra (J. Cook) ...	3	43	42.68	177
Slope I (E. E. Beecroft) ...	5	621	114.98	477
Smile (H. W. Davey)...	5	40	23.89	99
Star (Romola Nigel G.M. Co.) ...	5	358	81.03	336
Do. (sands) ...	—	185	30.01	124
St. Ives (Ettie Syndicate) sands...	—	180	71.72	297
Stock's Luck (Smith & Ryan) ...	3	280	92.70	384
Tail (Morrison & Granger) ...	5	500	76.57	317
Tentonic (B. & B. Synd.) clean up	2	230	68.41	284
Wolley Dog (P. H. Davis) ...	2	230	316.62	1,313
Do. (sands) ...	—	200	63.47	263
Other Sources (L. & R. M. & L. Co.)	—	—	4.12	17

Bulawayo district total 14,729.89 59,221

GWELO DISTRICT—

Alderman (Williams & Woodger), December...	3	400	101.56	423
Do., January ...	—	400	89.54	371
Ardpatrick (C. Maleham) ...	3	300	80.01	332
Bell Reef Dev. Co., Ltd. ...	2B 1T	3,733	1,712.48	7,099
Bonsor B323 (Cornish Syndicate)...	10	820	100.02	415
Do. (sands) ...	—	825	33.16	137
Bonsor B327 (T. Roberts)...	10	700	113.86	472
Camelia (S. Levin)...	10 1P	1,624	170.27	706
Do. (sands) ...	—	1,430	42.70	177
Csardas (Wolfshall Synd.) ...	10	534	534.62	2,216
Do. (sands) ...	—	420	62.57	259
Do. (slimes) ...	—	163	14.67	61
Falcon Mines, Ltd. ...	36 3T	19,270	3,061.35	12,838
Do. Copper, £14,733.	—	—	—	—
Fed Up (A. Malcolm) ...	4	170	102.27	424
Gaika G.M. Co., Ltd. ...	5 1P	3,175	1,394.72	5,858
Do. (sands) ...	—	1,191	67.45	283
Do. (slimes) ...	—	4,000	247.76	1,041
Glen Hume (Hume, Withey & Walker) ...	5	740	118.73	492
Glen Rosa (Glen Rosa Synd.)...	10	1,060	410.36	1,701
Do. (sands) ...	—	570	124.83	518
Globe & Phoenix G.M. Co., Ltd.	40 10P	6,505	6,092.89	25,590
Do. (sands) ...	—	5,909	911.74	3,829
Do. (slimes) ...	—	1,598	384.24	1,614
Do. (concentrates) ...	—	262	373.47	1,569
Ingersoll (C. T. Uren)...	2	24	12.83	53
Leopard (Leopard Trib. Synd.)...	5	520	165.22	685
Lulu (C. W. Leppington) ...	2	150	28.57	118
Moss (W. M. James) ...	5	970	526.73	2,184
New Dunraven G.M. Co., Ltd.	5	500	101.78	422
Pacific (Wanderer Sel. G.M., Ltd.)	—	209	13.66	57
Pagamesa (W. H. Peard)...	15 2P	673	331.43	1,374
Do. (sands) ...	—	502	83.33	345
Patoscar (O. T. Taylor) ...	5	150	21.39	84
Pondo (F. C. Luxat) ...	5	750	149.54	620
Do. (sands) ...	—	370	39.10	162
Record (Pini & Wearing)...	5	300	47.57	197
Romney (T. Pedlow) ...	5	200	59.04	245
Selukwe Columbia G.M. Co., Ltd.—	—	—	—	—
Danga... ..	10 1P	110	31.85	132
Do. (sands) ...	—	62	11.75	49
Wonderland ...	—	1,318	443.55	1,839
Do. (sands) ...	—	867	163.77	679
Yankee Doodle ...	10	1,395	225.65	935
Do. (sands) ...	—	900	134.22	557
Sixteen (F. G. Shaw) ...	2	60	12.77	53
Shamrock (H. H. Crampin), Nov.	—	—	18.62	77
Do. (sands) ...	—	1,200	41.88	174
Sun (A. E. West) ...	5	308	22.77	94
Surprise (W. T. Woods) ...	—	650	20.03	83
Tabekwe I (A. N. Tyrrell)...	20	867	166.51	690
Do. (sands) ...	—	1,200	102.99	427
Tabekwe B 80... ..	20	1,326	139.25	577
Taxul (F. C. Luxat) ...	1H	550	93.09	386
Do. (sands) ...	—	450	62.09	257
Umpali (Bolt & Reed) ...	5	320	81.99	340
Val d'Or (L. Maleham)...	5	225	82.35	341
Vedas (C. Johnson) ...	3	110	32.65	135
Veracity (L. R. Evans)...	2	250	89.42	371
Walrus (J. Jones) ...	6	105	42.65	177

	No. of stamps.	Tons treated.	Yield. ozs.	Value. £
Wanderer (Selukwe G.M., Ltd.)	4GR	12,331	1,136.18	4,710
Do. (concentrates)	—	—	35.61	144
Zabonkwe (Holmes & Urquhart)	5	810	68.54	284
Do. (sands)	—	620	89.63	372
Gwelo district total			21,275.74	88,875
Matabeleland total		35,555.63	ozs.	
Value...		£148,096		

MASHONALAND.

HARTLEY DISTRICT—

Arlandzer (Keir & Rooke)	10	1,600	120.26	499
Do. (sands)	—	1,500	198.03	820
Baltimore & Virginia (P. A. Enke)	5	405	39.39	163
Brilliant (Mabel's Luck Synd.)	5 11P	696	137.14	568
Do. (sands and slimes)	—	686	101.45	420
British United (F. G. Twidell)	—	—	.59	2
Buffalo (E. A. Begbie)	5	514	161.93	671
Bonheur	2	38	54.83	227
Cam & Motor G.M. Co., Ltd.	—	13,751	4,457.70	18,901
Concession Hill and W. Ext. (C. E. Simpson)	5 1C	1,205	252.92	1,049
Do. (sands)	—	867	64.10	265
Dalmy (Macdonald & Sale)	5 1C	1,761	88.02	385
Do. (sands)	—	1,569	146.42	607
Dalmy I. W. (Macdonald & Sale)	5	475	56.66	235
Do. (sands)	—	285	48.25	200
Dawn (Arrow Synd.)	5 1P	698	404.93	1,679
Do. (sands)	—	698	26.06	108
Eiffel Blue (Willoughby's Con. Co., Ltd.)	10	1,533	699.31	2,899
Do. (sands)	—	960	57.31	237
Do. (slimes) (F. Caldwell)	—	126	9.80	41
Eileu Alannah Mining Co., Ltd.	12 2T	4,243	831.42	3,447
Do. (sands)	—	4,946	1,347.60	5,586
Do. (slags)	—	—	79.68	319
Enny Ext. (E. G. Goodyer)	5	560	140.39	582
Do. (sands)	—	300	25.25	105
Eureka (Eureka Syndicate)	2	120	46.00	191
Excelsior (Smith & Heard)	2	210	79.53	330
Fiasco Kaiser (Attilio & Mikellatos)	5	200	69.91	290
Giant Mines of Rhodesia, Ltd.	30 2T	5,028	750.10	3,086
Glasgow Mines, Ltd.	5	547	135.79	563
Do. (sands)	—	252	26.94	111
Glencairn (Pickstone G.M., Ltd.)	5	708	576.49	2,390
Golden Valley (J. Mack)	10	1,222	544.08	2,255
Do. (sands)	—	630	154.31	640
Guelph (J. & M. Davidson)	3	116	27.85	115
Inez (L. Highland)	10	1,350	285.59	1,184
Do. (sands)	—	920	80.55	334
Inkerman (J. J. Minnaar)	5	350	79.27	329
Do. (sands)	—	300	43.96	182
Kanyemba (Kanyemba Synd.)	10	1,015	285.17	1,182
Do. (sands)	—	660	68.40	283
Mersea (H. F. Wilson)	5	96	14.22	59
Mudale (E. A. McDowell)	5	420	69.11	287
Oleander	3	450	112.15	465
Owl (A. Rolfe)	10	1,503	1,332.91	5,526
Do. (sands and slimes)	—	1,260	477.90	1,981
Owl Extn. (Cribb & Seear)	5	850	175.27	727
Do. (sands)	—	850	21.49	89
Pomposo (J. Knott)	5	276	24.66	102
Do. (sands)	—	450	75.33	312
Revie (R. R. Aitken)	5	795	205.28	851
Do. (sands)	—	600	66.32	275
St. George (J. Hussey)	2	120	35.13	146
Seigneury (Seigneury Synd.)	10	1,060	148.28	615
Do. (sands)	—	1,000	28.58	118
Signal (J. M. Kerr), pannings	—	—	3.26	13
Shepherds (Phenician R) Co., Ltd.	5 1T	910	181.35	752
Do. (sands)	—	910	84.95	352
Thistle Etna G.M., Ltd.	1C	1,026	211.32	877
Do. (sands)	—	1,053	117.13	480
Do. (slags)	—	—	8.23	35
V. L. Synd. (slags)	—	—	37.53	157
Village Main (Bruce & Buchanan)—				
December	5	576	48.69	202
January	—	625	58.38	242
Washington (I. J. Minnaar), pigs	—	—	8.40	35
What Cheer (H. Moser)	5	416	211.74	878
Do. (sands)	—	575	103.63	429
White Rose (White Rose Synd.)	2	185	42.26	175
Zimbo (Fiander & Bellwood)	—	—	1.47	6
Other Sources	—	—	7.50	31
Hartley district total			16,716.89	69,686

LOMAGUNDI DISTRICT—

Alluvial (W. Smart)	—	—	2.32	10
Angwa (F. L. Standen)	5	721	95.48	396

	No. of stamps.	Tons treated.	Yield. ozs.	Value. £
Colorado (Digger Synd.)	5	242	12.24	51
Do. (sands)	—	150	11.57	38
Eldorado Banket G.M. Co., Ltd.	20 1C 4P	4,050	1,784.49	7,495
Do. (sands)	—	3,986	720.02	3,024
Evelyn (A. F. Graham)	2	110	20.29	84
Golden Kopje Prop. Mines, Ltd.	60 3T	13,010	978.07	4,168
Do. (slimes)	—	13,010	1,485.57	6,239
Golden Butterfly	5	602	74.43	308
May W. Exten. (May Synd.)	5	340	79.11	328
Do. (sands)	—	180	36.14	149
Mediterraneo (J. Perhat)	2	150	63.84	264
Lomagundi district total			5,363.57	22,505

MAZOE DISTRICT—

Botha, H. (Clarkson and Sons)	1 H	2,560	27.58	114
Do. (sands)	—	890	61.03	253
Blue Lagoon (F. D. Laland)	2	120	17.97	74
Chin (Arrow Synd., Ltd.)	5 1P	900	187.29	776
Do. (sands)	—	900	58.53	243
Day Dawn	—	245	47.75	198
Jumbo G.M. Co., Ltd.	20	2,200	459.80	1,906
Do. (sands)	—	1,190	58.23	241
Do. (slimes)	—	1,010	15.23	63
Do. "Reno"	—	300	62.69	260
Do. (sands)	—	160	7.94	33
Do. (slimes)	—	140	2.07	9
Kimberley (Mash.) G.M. Co., Ltd.	8 2T	5,250	922.93	3,939
Do. (sands)	—	2,150	372.58	1,580
Do. (slimes)	—	3,100	304.40	1,291
Kingsley Hoard (A. S. Warwick)	5	728	138.72	575
May (Van der Berg and Picardo)	3	130	25.29	105
Micky (Micky Syndicate)	2	510	522.30	2,165
Moffat (Laing and Marshall)	2	289	118.70	492
Olive (A. Lover)	2	200	41.73	173
Promoter (F. C. Croxford)	1C	2,000	52.79	219
Do. (sands) B. H. Jones	—	1,706	74.00	357
S.D.C. 3 E. (B. G. Byerley)	1H	648	53.79	223
Shashi (C. Laland)	2	105	26.84	111
Venus (J. W. Giles)	2	100	26.60	110
Xmas (Xmas Synd.) sands	—	—	25.59	106
Yellow Jacket (J. J. Bayer) sands	—	360	16.41	69
Mazoe district total			3,784.78	15,635

SALISBURY DISTRICT—

Beatrice (Scott Synd.)	10	1,050	362.87	1,504
Do. (sands)	—	600	57.23	237
Black Cat (Black Cat Synd.)	2	180	44.80	186
Celtic (Cundill and Mackay)	2	175	22.37	95
Ceylon (Ceylon Synd.) sands	—	750	135.90	563
Cross-your-Luck (Seb. and District Mines)	2 1P	215	57.18	237
Do. (sands and slimes)	—	100	92.47	383
Found A.	2	77	22.10	92
Do. (sands)	—	545	93.85	389
Joking (Harrison & Drabble)	2	268	401.02	1,662
Joker	—	300	43.64	181
Kenilworth (Kenilworth Synd.)	2	122	25.92	107
Louise Grand (H. S. Plant)	1H	350	16.11	67
Do. (sands)	—	670	23.33	97
Mashona (H. S. Plant)	2	150	37.84	157
Mill (L. Chiappini) sands	—	600	21.72	90
Mont d'Or (Claxton and Bussell)	5	444	130.58	541
Do. (sands)	—	374	28.59	119
Norseman (F. Johnsen)	3	10	13.20	55
Olympus C (sands)	—	572	96.09	398
Planet (Planet Tribute Synd.)	10 2P	972	215.47	893
Do. (slimes)	—	972	221.39	918
Radnor (Ion. and Rhod. M. and L. Co.)	5 2P	898	443.51	1,839
Shanva Mines, Ltd.	56 8T	50,435	2,817.33	11,833
Do. (sands)	—	28,246	5,829.52	24,484
Do. (slimes)	—	23,675	—	—
Do. (slags)	—	1,182	99.82	399
Southern Cross (H. G. Bateman)	1D	165	47.56	197
Trio (Trio Synd.)	5	360	84.59	350
Salisbury district total			11,486.00	48,071

UMTALI DISTRICT—

Blue Peter (A. P. Prior)	5	80	14.60	60
Bedlona (W. W. T. Pike)	5	70	5.01	21
Constance (J. F. Kapnek)	5	760	106.82	443
Florence (P. M. Branken)	5	12	2.34	10
Golden Gate	5	64	7.70	32
Grand Manika	5 1H	553	104.51	433
Kent Mines, Ltd.	10	803	190.31	789
Do. (sands)	—	600	44.10	183
Liverpool (R. G. Snodgrass)	5	630	78.61	326
Do. (sands)	—	220	27.40	113

	No. of stamps.	Tons treated.	Yield. ozs.	Value. £
Lucknow (Toronto Rhod. Synd.)...	—	610	65.75	272
Do. (sands)	—	200	60.75	252
Montezuma G.M. Co., Ltd.	10	1,200	18.67	368
Do. (sands)	—	500	12.57	52
Rezende Mines, Ltd.	60	11,700	1,060.59	4,500
Do. (sands)	—	3,431	275.31	1,168
Do. (slimes)	—	2,045	193.93	823
Do. (concentrates)	—	13,152	404.25	1,715
Surrey (Cawood Bros.)	5	420	56.83	236
Do. (sands)	—	420	37.75	156
Toronto (J. H. Jeffries)	2	285	45.59	189
Do. (sands)	—	180	22.43	93
Virginia (E. Young)	111	280	46.14	191

Umtali district total 2,951.96 12,426

VICTORIA DISTRICT—				
Empress (S.A. Pros. & Con. Synd.)	3	1,400	215.57	893
Do. (sands and slimes) ..	—	1,380	164.52	682
Ruby (E. Frankis)	5	210	27.30	113
Sunbeam (Douglas and Durrell) ...	5	231	68.91	286
Wake Up John (S. Hemlock)	2	92	46.51	193

Victoria district total 522.81 2,117

Mashonaland total	40,776.01 ozs.
Value	£170,490
Grand total	76,331.64 ozs.
Value	£318,586

GRAND TOTAL.		
	Quantity.	Value.
Gold, ozs.	76,331.64	£318,586
Silver, ozs.	15,217.21	1,331
Copper, tons	311.15	15,981
Chrome iron, tons	30.07	94
Coal, tons (sales)	35,461	10,420
Asbestos, tons	279.25	4,478
Wolframite, tons75	131
Diamonds, carats	48.25	193
		£351,214

ASBESTOS.

	Tons.	Value.
Balmain (Mrs. Goddard)	17	£272
Victoria (Rhod.) Asbestos, Ltd. ...	65.25	1,044
King Asbestos (Rhod.), Ltd.	170.10	2,720
Regina (P. A. Nightingale)	27.50	440
	279.85	£4,478

GOLD OUTPUT COMPARISONS.

	Ozs.	Value.
December, 1915	79,106.62	£331,376
January, 1916	76,331.64	318,586
Decrease	2,774.98	£12,790
January, 1915	70,082.36	£293,133
January, 1916	76,331.64	318,586
Decrease	6,249.28	£25,453

Sir Lionel Phillips, Bart., has returned to South Africa, and is expected back on the Rand next week.

* * * *

Mr. H. F. Marriott, Consulting Engineer to the Central Mining Corporation, is on a visit to the Rand.

* * * *

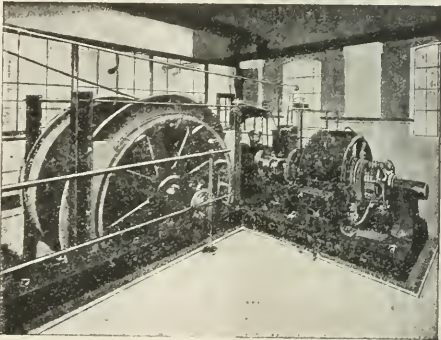
Mr. W. McC. Cameron is sailing for the States on the 18th instant.

WANTED.—Antimony Ores ; state price, percentages, analysis, quantities can deliver monthly and points of delivery. Address Manufacturer, Station C, New York, U.S.A.

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Works: CHELMSFORD, ENGLAND.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

More Optimistic Feeling—Local Industries Developing—The American Trade—Steel Plates Dearer—Johannesburg a Big Centre for Trade—Travellers from the Coast.

THERE is altogether a more optimistic feeling throughout the Commercial Exchange and amongst merchants generally, owing to the favourable prospects of the great and terrible battle around Verdun, on behalf of the Allies. Its significance may bring about a little "bit of blue sky" and so give some kind of pointer towards the end. Another pointer, from an optimistic view, is that the mines have quieted down in their buying requisitions so that it has become quite noticeable. Now it is obvious that men responsible for millions in the shape of the mines do not spare themselves cable information, and it is generally understood that the inner circles of London and Paris are taking a favourable view of the position, which is reflected in a measure by the strength of the bourses overseas and in a lesser degree by the one on Marshall Square. Hence it may be that the mines are waiting to see what developments are likely before buying freely and in the meantime are content to hold their hands. The best news available is that several merchants are combining and as a preliminary a meeting has been held to inaugurate steps to manufacture more mining material requirements. The idea is to obtain the latest machinery for the manufacture of bolts, nuts, washers, and such like small things as a start, and when that becomes a success, then quietly expand. The plan is excellent, and considering the local iron and steel industry is doing such magnificent work in their preliminary efforts, anything manufactured on the spot to supply the market can also hope for similar success. The cement factories, the lime works, the glazed pipes for drainage and water carrying, all have proved their utility. There are two important outstanding features in establishing factories far away from the coast and waterways. The first is that there must be a substantial market for the goods to be made, within a motor trolley's delivery of the factory. Secondly, that the latest methods must be adopted, both in expert men, to a limited extent, and the very best of machinery. To comply with the first condition we have a big market in the mines for things actually in use by them, and again the very cheap and really excellent coal supply at our very doors. Without specifying anything in particular, it is easy to recognise the mistake made in buildings and other things, as the promoters built and planned for a city the size and importance of London or New York instead of a glorified mining camp. To give one example, and as it is a public institution it need not offend anyone, and that is our Municipal market at Newtown. This is a splendidly planned affair, and yet for the town's retail market, has so far been a failure because it is in the wrong position. Yet every time one visits the place as a critic the idea of so much detail,

so much thoughtful planning for the receipt and delivery of goods by the rail and road, there is much, very much, to be admired from a wholesale standpoint. However, with unlimited money and unlimited advice, £6,000 was lost on the market last year. The lesson is that if a public institution, with practically unlimited control of money, can lose on the year's trading, how easy it can happen that private investors with limited resources can do likewise. The retail Covent Garden of South Africa should be on the bottom end of Market Square, whereas to-day we have a Market Square *sans* a market.

THE AMERICAN TRADE.


The opportunity offered, and it was readily appreciated, to enquire into the progress the American trade was making with South Africa. Originally there were only two recognised ships coming to and fro monthly, but now double that number is scheduled. In fact, in January seven boats loaded up to the brim arrived at South African ports from America, and now three are expected to arrive almost simultaneously. From the information gathered it appears that we are not getting any more, or very little, oils, motor spirits and paraffin, therefore it shows that much more mining material and general goods, to the amount of four times, so the estimate goes, more to-day than in the pre-war period. One of the chief indent firms here have for a long time past only accepted orders subject to confirmation by cable, as there is so much merchandise on the New York harbours booked for South Africa that no definite promises can be made as to dates of shipment. The Americans have quite collared our market for electric lamps, as one firm alone is said to have quite six months' supply on hand in Johannesburg, sufficient for the whole of the Witwatersrand. Lamps are of a bulky nature for shipment, therefore the mine buyers foreseeing the difficulty of freightage, especially from Britain and Holland, secured sufficient for a year's supply before the close of last year. In this respect one buyer remarked that if the mines, who formerly relied upon the merchants here for monthly supplies, therefore did not carry much surplus, kept on piling up stocks now, they would have to build more store houses. He also paid a compliment to the merchants in saying that they had risen to the occasion since the war started in anticipating the requirements and working in complete harmony with the buyers and all concerned—a give and take policy so far as circumstances permitted.

IRON, STEEL AND HARDWARE.

There is a great scarcity of spanners, wrenches, and mine hammers. A new list has been prepared for steel plates,



Waterman's Ideal Fountain Pen



On Active Service

the soldier needs a Fountain Pen to keep in touch with home and friends. Send him a genuine Waterman's Ideal (Safety Type). Doesn't leak however carried. Ever-ready. Ever-right.

12/6 and upwards for Regular and Self-Filling Types.
15/- and upwards for Safety and Pump-Filling Types.

From Stationers and Jewellers everywhere

L. G. SLOAN, "The Pen Corner" Kingsway,
London, England.

NEW MAP OF THE FAR EAST RAND.

BY W. E. BLELOCH.

SHOWING the relative positions of the VAN RYN and NIGEL REEFS and the sequence of beds above and below, will be published on Saturday morning, the 4th of March, by the Central News Agency, and can be obtained at their Central Stores and their various branches along the Rand at the price of 5/- per copy on ordinary paper, and 7/6 per copy on stiff card-board.

Purchasers of each copy of the Map will be given a copy of a report by Mr. W. T. Hallimond, M., I.M.M., M.I.M.E., descriptive of the geology of the area illustrated on the Map, also a copy of a statement by the Board of Directors of the Southern Van Ryn Reef Gold Mining Company, Limited.

which is embodied in our standard prices; it need hardly be mentioned that prices are higher. The first item shows an advance from 24s. 6d. to 27s. per 100 lbs. on 10 ft. by 4 ft. by size of one-sixteenth, and so on. Drill steel is on the short side, but there is plenty on order, and as this class of goods has preference in shipping, it is not likely that any serious inconvenience will be felt. The mines are buying up piping from $\frac{3}{4}$ in. to 12 in., as well as the agricultural supply people. There are very fair enquiries for iron and steel generally, but anything like rushing demands have fallen off as the mines have heaps of supplies.

OILS, COLOURS, WHITE LEAD, ETC.

The manager of a leading house states that business is splendid for the people who have stocks. Undoubtedly, he continued, Johannesburg has developed into a very big centre, and in consequence competition is very keen. For example, travellers are here from the coast pushing white lead and other leading lines. It is a matter of chance in obtaining consignments, as importers as a rule have plenty on order, but very little on hand. According to Thursday's cables, oxide in oils advanced £3 per ton. All varnishes also rose 2s. per gallon and putty 8s. per cwt. The latest variations in the price of white lead, which in parts is very scarce, is Capetown 85s. per 100 lbs., East London 62s. 6d. to 65s., and Durban 61s. When Capetown gets supplies, already sent from here, it will obviously lower their prices, and so make them come more into line with other places. The explanation is that stocks have become irregular in the various big centres.

TIMBER AND BUILDING MATERIALS.

Chiefly on account of the constant demand from the mines for bulk timber, pitch pine has risen from 5s. 10d. to 6s. 6d. per cub. ft. and Oregon from 4s. 6d. to 4s. 9d. There is an optimistic feeling throughout the timber trade, as supplies will carry us along for a long while and consignments are already on the water. There are various tales about, in reference to releasing more ships to carry commerce, and other tales are just the contrary, but these have not disturbed the merchants generally, as it is recognised that no information can be relied or acted upon only for a very short time. One trader remarked about the building trade, that although things were a little slower, we were lucky to be in Johannesburg and so take part in the fair amount of trade always in evidence.

REVISED PRICE LIST.

Approximate war prices, subject to quick change.—Mining and building hardware: Iron, imported, bar 20s., 22s. 6d., 25s. and 27s. 6d. (local do., 15s. up), angle, 21s. to 21s. 6d. per 100 lbs.; mild steel bar, 3d. lb.; drill, 5½d. lb.; tool, 7½d. to 9d. lb.; steel plates, 10ft. x 4ft. x 1-16in., 24s. 6d.; do., $\frac{3}{4}$ in. and 3-16 in., 23s. 6d.; $\frac{1}{2}$ in. and upwards, 27s.; 10 ft. x 5 ft. x 1-16 in., 28s. 6d.; $\frac{1}{4}$ in. and 3-16 in., 25s.; 10 ft. x 6 ft. x 1-16 in., 27s. 6d.; 3-16 in. x 10 ft. x 4 ft., 26s.; $\frac{1}{2}$ in. up, 10 ft. x 4 ft., 25s. to 27s.; hexagon bolts, $\frac{3}{8}$ in. to 3 in., 8d. per lb.; over 3 in., 7d. lb.; $\frac{1}{2}$ in. up to 2½ in., 45s.; 2½ in. to 6 in., 42s. 6d.; 6½ in. and over, 40s.; $\frac{3}{4}$ in. up to 2½ in., 37s. 6d.; 2½ in. to 6 in., 35s.; 6½ in. and up, 32s. 6d.; $\frac{3}{4}$ in., $\frac{1}{2}$ in., and 1 in. up to 2½ in., 32s. 6d.; 2½ in. to 6 in., 30s.; 6½ in. and up, 29s. per 100 lbs. Nuts, $\frac{3}{8}$ in., 9d. lb.; $\frac{1}{2}$ in., 50s.; $\frac{3}{4}$ in. to 1½ in., 47s. 6d.; 1½ in. to 1¾ in., 52s. 6d. per 100 lbs.; 2 in., 7½d. per lb.; washers, $\frac{3}{4}$ in. and under, 30s., and above that size, 30s. per 100 lbs.; shoes and dies, 30s. to 32s. 6d. per 100 lbs.; rails,

£15½ per ton; picks, 4 lbs., 22s. 6d. per doz.; shovels, 32s. 6d. to 42s. 6d. per doz.; hammers, drill, 6d. to 9d. lb.; hammer handles (best American), 14 in., 3s. 6d., 24 in., 5s. 6d., 30 in., 7s. 6d., 36 in., 10s. 6d. per doz.; metal, anti-friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 9½d., 11ft., 9½d., 12ft., 9½d.; 26 gauge, 6ft. to 10 ft., all lengths about 7d. to 7½d.; flat galvanised, 18 to 24 gauge, 31s.; 26 gauge, 32s. 6d. 100 lbs.; floor brads, 27s. 6d.; ceiling, 27s. 6d.; wire nails, 25s. 6d. to 30s. per 100 lbs.; solder, 50 per cent., 1s. 2d. per lb.; locks, rim, 45s.; mortice, 60s. doz.; barbed wire, 20s. to 22s. 6d. 100 lbs. coil.

Timber: Deals, Baltic, 9x3, up to 16ft. 10½d.; over, 10½d. to 11½d. (Oregon, 10½d.); flooring, 4½x½ and 6x½, 5d. to 5½d. per sq. ft.; do., 4 x 1½, 6½d., and 6 x 1½, 6½d.; Oregon edge grain, 5½d. and 6½d.; ceilings, 6 x ½, 3d. per sq. ft.; Oregon, 4 x ½, 4½d.; pitch pine, 6s. 6d. per cub. ft.; Oregon, 4s. 9d. per cub. ft.; clear pine, $\frac{1}{2}$ in. x 12 in., 7½d. per ft.; 1 in. x 12 in., 8d.; teak, small planks, 14s. 9d. per cub. ft.; do., large, 15s. 9d.; jarrah, 8s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 8d.; scantling, 9 x 3, 10d. per ft.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 6d., truck loads 6s. 6d., slacked; do., 5s.; blue, 3s.; bricks at kiln, stock, 35s.; wire cuts, 40s. to 50s. pressed, 65s. per 1,000, road transport now normal; salt and white glazed bricks, £27 10s. per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6ft. plain, 21s. 6d.; fluted, 24s.; fireclay bricks, £9½, good* average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail

Oils, paints, lead, oxides, glass: Linseed, raw, 27s. 6d., boiled, 27s. 6d. per 5-gall.; white lead, 65s. to 70s. per 100 lbs.; turpentine, 52s. 6d. 2/4 galls.; coal tar, imported, 10s. to 11s. per 5 galls.; oxide in oil, 30s. to 32s. 6d. per 100 lbs.; dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. per 12½ lb. bladders, 29s. 6d. casks of 100 lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 9d. per lb.; White Rose paraffin, 14s. 6d. 2/5; Laurel do., 14s. 3d.; petrol, 24s. 6d. 2/4; motor oil, 6s. to 7s. 6d. per gallon; lubricating oils, 24s. per case; cylinder, 30s.; paints in tins, 8d. to 9d. per lb., according to quantity, and if ordered to be mixed, 10 per cent. on pre-war rates.

Chemicals: Mercury, £17 10s. per 75 lb. bottle; bichromate potash, 1s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 7s. 6d. lb.; alum, 9d. lb.; carbolic acid, 5s. 6d. lb.; borax, 66s. 100 lbs.; cyanide soda, 1s. 4d. lb.; hypo, 1s. lb.; acetate lead, 67s. 6d. 100 lbs.; litharge (assay), 57s. 6d., (commercial) 37s. 6d. 100 lbs.; zinc sheets and blocks, 1s. 3d. lb.; plumbago crucibles, 4½ per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 14s. to 21s. wholesale, and 21s. to 27s. doz. retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 9d. to 1s. per yard; 3/20 coils of wire, 27s.; do., 3/22, 23s.; tubing, 12s. to 13s. 100 ft.; keyholders, 2s. 6d. each; round blocks, 3½ in., 4s. doz., local; lamp holder cord grips, 15s. doz.; switches, 5 amp., 12s. to 13s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 15s. to 16s. 6d. 100; cleats, 18s. per doz.; P.O. insulators, 18s.; motors, 3 h.p., about £30 new.

Cables:
"McKECHNIE,
WIDNES."

McKECHNIE BROTHERS, LIMITED.

SMELTING WORKS: WIDNES, ENGLAND.

LONDON OFFICE: 11 LOMBARD STREET, S.E.

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BUYERS of

COPPER, SILVER and GOLD CONCENTRATES,
ORES, MATTES and PRECIPITATES.

COMPLEX ORES
METAL RESIDUES and SCRAP.

THE WEEK IN THE SHAREMARKET.

Firm and Active—Springs the Feature—Improving Tone.

LED by Springs and Springs Options, there has been considerable activity in the market this week. Development on the Springs property continues to give highly satisfactory results, and the outlook for the mine is steadily improving. Other Far East Rand shares were firmer in sympathy; and Daggatonteins improved on the notice of Treasury sanction for the scheme. Knights Centrals were another prominent feature, and the excellent report issued on Thursday reflects the desire of the directors to keep shareholders fully informed regarding progress. Main Reef Wests and Bantjes continue active counters, and some of the Central Rand favourites, such as City Deeps, are again beginning to attract attention. Diamonds have been a trifle firmer, and tins, led by Zaaipplaats, have begun to respond to the rising price of the metal.

	Friday. 25th.	Sat. 26th.	Mon. 28th.	Tues. 29th.	Wed. 1st.	Thurs. 2nd.
African Farms	8 3	8 6	8 7	8 0	8 3	8 3
Apex Mines	5 9*	6 0†	5 6*	5 6*	5 3*	5 3*
Aurora Wests	10 0A	10 0*	10 6*	10 0*	10 3*	10 3*
Bantjes Consolidateds	13 4‡	13 0	12 10‡	12 9	—	—
Brakpan Mines	—	70 0*	70 0*	70 6*	69 6*	70 6*
Breyten Collieries . .	19 0*	19 0*	19 0*	19 0*	19 0*	19 0*
Brick and Potteries . .	5 0*	—	5 0*	—	—	—
British South Africa	—	11 0*	11 0*	—	—	—
Bushveld Tins	0 7*	0 6*	0 7*	0 7*	0 7*	0 7*
Cunderella Cons. . . .	5 6*	5 6*	5 6*	5 9*	—	5 6*
City and Suburbans . .	33 6*	33 9	33 9	34 0*	33 6*	34 0
City Deeps	71 6	70 6*	71 0	71 3	71 0*	73 0
Cloverfield Mines . . .	7 10†	7 9	7 7*	7 3*	7 3*	7 3
Clydesdale Collieries .	—	14 0*	—	—	—	—
Con. Langlaagtes . . .	31 0B	31 0*	30 0*	—	30 0*	30 0*
Con. Main Reefs	18 6*	18 6*	18 9	18 9	18 9	18 6
Con. Mines Selection	—	—	—	—	—	14 0*
Coronation Collieries	28 0A	30 0	30 0†	27 6†	30 0†	30 0†
Coronation Freeholds	0 3	—	0 3*	0 3*	0 4*	0 5
Coronation Syndicates	—	—	—	—	2 0*	2 0*
Crown Diamonds	2 0*	2 3*	2 0*	2 0*	2 0*	2 0*
Crown Mines Deb. . . .	£100†	—	£95*	—	£95*	—
East Rand Centrals . .	4 11	4 9*	5 0†	5 0	5 0*	5 0*
East Rand Coals	2 3*	2 9*	2 10	2 9*	2 9	2 10
East Rand Deeps	1 5*	1 6*	1 7	1 6*	1 7	1 6*
East Rand Minings . . .	10 0*	10 0*	10 3*	10 6*	10 9*	10 6*
East Rand Prop.	—	16 0*	15 6*	15 6	16 0	16 6*
East Rand Deb.	£77½*	£77½*	£77½*	£77½*	£77½*	£77½*
Eastern Golds	1 4*	1 4*	1 4*	1 4*	1 4	1 3*
Ferreira Deeps	32 6*	—	38 9†	35 0*	—	—
Frank Smith Diamonds	2 0*	2 3*	2 4*	2 4*	2 4	2 2*
Geduld Props.	35 3*	35 6*	35 9	35 9*	35 3*	35 6*
Ginsbergs	—	—	—	—	7 6*	8 0*
Glencairns	2 0*	—	—	—	—	2 0*
Glencoe Collieries . . .	6 3*	6 3*	6 9†	—	—	—
Glynn's Lydenburgs . .	—	11 0*	10 0*	—	12 0†	10 6*
Govt. Areas	—	30 9	31 0	31 3	31 6	31 6*
Jupiters	7 3*	7 3*	7 6	—	—	7 3*
Klerksdorp Prop. . . .	1 8B	1 9*	1 9*	—	1 9*	1 9*
Knight Centrals	16 11	17 10	16 10	17 0	17 7*	18 2
Knights Deeps	22 6†	—	22 6†	—	—	—
Lace Prop.	4 6*	5 0†	4 9	4 0*	4 5*	4 0*
Luipaardsvlei Est. . . .	6 9*	—	—	—	—	6 6*
Lydenburg Farms	8 6*	8 6*	8 6*	8 1B	8 9	9 0
Main Reef Wests	9 0*	—	8 9*	8 9*	8 9*	8 10
Meyer and Charltons	100 0*	100 0*	101 3	101 3*	102 6*	102 6*
Middelvlei Est.	1 3*	1 3*	1 4	1 3*	1 3*	1 3*
Modder B's.	114 0	114 0A	113 0†	111 0*	111 0*	114 0†
Modder Deeps	113 0	111 6*	112 0	111 0*	112 0	113 0*
Natal Navig. Col. . . .	17 0†	17 0†	17 0†	17 0†	17 0†	—
New Boksburgs	1 5	1 5*	1 5*	—	1 6*	1 5*
New Eland Diamonds	10 0*	—	10 0*	12 6†	—	12 6†
New Era Cons.	7 5	7 9†	7 5*	7 6*	7 7*	7 9
New Geduld Deeps	4 0†	3 9*	3 9*	3 9*	3 8	3 9
New Heriots	52 6*	—	52 6*	52 6*	52 6*	—
New Kleinfonteins . . .	23 6*	29 0*	28 9	28 9	28 6	28 6
New Modderfonteins	301 0*	302 6*	302 0A	302 6	300 0	300 0*
New Rietfonteins	—	1 0	—	1 0†	0 9*	0 9*
New Unifields	11 3*	12 6†	12 6†	13 0†	11 0*	10 6*
Nigels	7 0*	8 0†	7 0*	7 0*	7 0*	7 6*
Nourse Mines	—	15 0*	15 0*	15 0*	15 0*	15 0*
Pretoria Cements	63 6*	65 0	65 6	64 0*	65 0	64 0*
Princess Estates	—	—	—	—	4 0†	—
Rand Collieries	3 0*	3 0*	—	3 0*	3 0*	3 0*
Rand Klips	6 1	6 3*	6 4	6 2*	6 3*	6 3
Rand Mines	70 0*	78 9†	—	—	—	—
Rand Nucleus	1 9*	1 9*	1 11	1 9*	1 9	1 10

* Buyers. † Sellers. A Odd lots.

	Friday. 25th.	Sat. 26th.	Mon. 28th.	Tues. 29th.	Wed. 1st.	Thurs. 2nd.
Randfontein Deeps . . .	3 6*	3 6*	3 9	3 6*	3 7*	3 7*
Randfontein Est.	—	10 0	10 0*	10 6	10 6*	10 9*
Roberts Victors	9 0*	9 0*	9 0*	9 0*	9 0*	9 0*
Rooibergs	12 3*	—	12 6	12 6*	12 9*	12 6*
Roodepoort Uniteds . . .	—	6 3*	—	—	—	—
Ryan Nigels	2 3*	2 0*	2 0*	2 3*	2 3*	—
Shebas	1 9*	2 3†	1 9*	—	1 6*	1 6*
Simmer Deeps	2 3*	2 3*	2 0*	2 6†	2 3*	2 0*
S.A. Lands	3 10	3 9*	3 9*	3 9*	3 9*	3 9*
Springs Mines	45 0A	47 0A	46 9	48 6	47 6	48 3*
Sub-Nigels	11 6*	11 6*	11 6*	11 6	11 3*	11 6
Swaziland Tins	20 0*	—	20 0*	—	20 0*	20 0*
Trans. and Delagoa . . .	—	50 0†	—	—	—	—
Trans. Coal Trusts. . . .	53 6*	55 3	55 3	55 6*	55 6	55 9
Transvaal Lands	13 0*	13 0*	13 0*	—	—	13 0*
Trans. G.M. Est.	—	—	22 0*	23 0*	24 0†	24 0†
Tudors	2 0†	2 0†	—	—	2 0†	2 0†
Van Dyks	—	3 3†	3 3†	—	3 3†	—
Van Ryn Deeps	50 6	58 6	59 0B	59 0	58 6*	53 9*
Van Ryn Estates	45 0†	—	40 0*	41 6*	—	—
Village Deeps	—	32 6*	32 6*	32 6*	32 6*	32 6*
Village Main Reefs . . .	—	20 6†	20 6†	20 6†	20 6†	—
Vogel Con. Deeps	1 6B	1 9†	1 7*	—	1 7*	1 6*
Weigedachts	20 0†	20 0†	—	—	—	—
Western Rand Est. . . .	1 1*	1 1*	1 0*	1 0*	1 0*	1 0
Withank Collieries	43 0*	—	—	—	—	—
Wit Deeps	25 0*	23 3	23 6	23 3*	23 3*	23 0*
Wolhuters	10 9B	10 3*	10 3*	10 3*	10 3*	10 3*
Zaaipplaats Tins	10 9	10 9	11 0	11 6	11 6	12 3

* Buyers. † Sellers. A Odd lots

ANSWERS TO CORRESPONDENTS

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

T. L. H. (Capetown).—(a) Scarcely; (b) impossible to say—it all depends on results of development; (c) no; (d) they are as good as anything in the market. Glad to be of any service.

W. Donald (Colesberg).—Your timely suggestion will be acted upon shortly.

"Constant Reader" (Florida).—(1) The property will be all right one of these days, when the capital necessary to bring it to the producing stage can be raised. (2) Everything depends on results of present development.

"Anxious" (Germiston).—(1) In liquidation. (2) Write to Mr. J. Donaldson, Exploration Buildings, Johannesburg.

"X.Y.Z."—Both are quite as sound holdings as anything the Rand has to offer.

"W. H."—A pure speculation.

"West Rand" (Krugersdorp).—Seven years is the official estimate, and it may be slightly exceeded. The chairman's speech is fully reported in this issue.

"N. D."—A private prosecution would doubtless be a costly business. Better leave the matter in the hands of the authorities.

"Diamond Miner" (Paris).—Allegations being considered. Hope to print portions of your letter in next issue.

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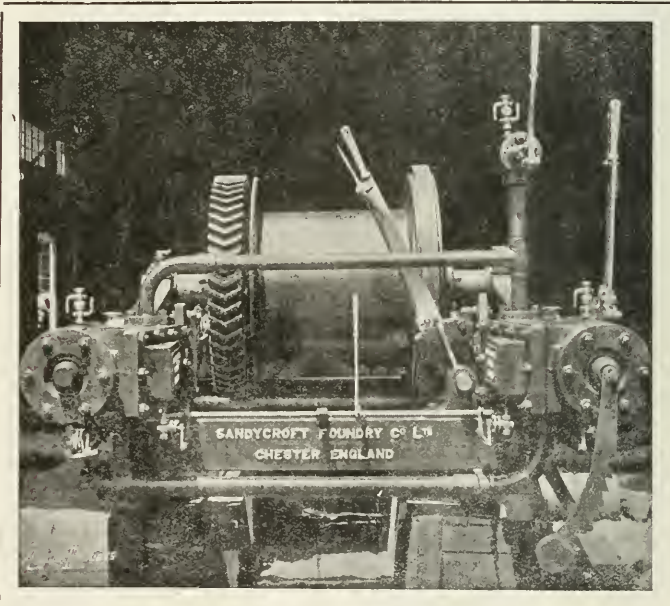
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Belting.

Engineering Notes and News.

The Uganda Railway in 1915.

WE have received the Administration Report 1914-15, of which lengthy summaries appear in the East African papers latest to hand by mail. Stress is laid on the way in which the outbreak of war changed all conditions of traffic, albeit the total revenue (£515,925) was only $5\frac{1}{2}$ per cent. less than the revenue for the previous year. Of this, however, £129,376 was on account of military operations in the defence of the country, leaving £386,549 to account of normal traffic.

KILLINDINI PIER.

Action in connection with the deep water pier is to be held over until the completion of the war. The works now under consideration include berthing accommodation for four ships, with all the necessary sheds, cranes, sidings, shunting yards, offices and general appliances that can be found in a modern up-to-date harbour, and the erection of a large and commodious Custom House, with all the necessary roads and approaches that will facilitate and simplify the general transactions of the business of the port. The intention is to reclaim the foreshore and give better access to the warehouses and unloading banks.

THE NAKURU LINE.

The survey of a projected railway, leaving the main line at or near Nakuru, running past the Eldama Ravine, across the Uasin Gishu Plateau, and terminating at some point between Mount Elgon and Mumias, has been in progress during the past year. A reconnaissance was made early in 1914 to see if an easy grade could be got out of Nakuru, and from July to the end of the financial year three survey parties have been in the field. The result of the survey points to a line about 200 miles in length with a ruling grade of $1\frac{1}{2}$ per cent.

LAKE TRANSPORT.

Provision is being made for better lake transport, by the addition of two 300-ton lighters. A fast passenger steamer service is considered; but is not deemed payable at the present. Oil fuel is provided for at Kisumu, but the preparations have been interrupted, due to the war. Also automatic lighting on the Lake is being considered, for night sailing.

ROLLING STOCK.

This is being increased. Some ten engines have been imported during the period and twelve more locomotives of a more powerful type are provided for under the loan. Goods rolling stock has been increased by 162 vehicles, and four large passenger bogies are in course of erection. More and better third-class accommodation is said to be wanted, and many varieties of rolling stock are on order.

LARGER WORKSHOPS.

An extension of the workshops at Nairobi has been erected, increasing the accommodation by nearly 50 per cent., and also a new carriage and wagon shop, measuring 200 ft. by 80 ft. New and improved machinery has also been erected in the workshops. A new foundry and appliances was arranged for previous to the war, but the inability of the English manufacturers to deal with general matters at the present crisis will delay its completion. Under the provisions of the New Parliamentary Loan, the workshops will, when the time arrives, be improved to the extent of over £40,000 expenditure.

THIKA LINE.

The Thika Railway, thirty-two miles in length, which was opened for traffic in October, 1913, has so far proved itself essentially a passenger line, fully three-quarters of its revenue being derived from coaching traffic. It has only 1st and 3rd passenger accommodation, but the number of first-class passengers represents over $17\frac{1}{2}$ per cent. of the total number of first and third class passengers carried over the whole system. The line during the past year has almost balanced receipts and expenditure, the net effect being a slight loss.

MAGADI.

The Magadi Railway is ninety-one miles in length from its junction with the Uganda Railway at Magadi Junction, mile 287, to its terminus at Lake Magadi. The first twenty-six miles to Kajiado were taken over and opened in February last. It is estimated that the output of the railway will increase from 50,000 tons in the first year that the manufacture of soda ash is commenced to 150,000 tons per annum in five years from that date.

KAMPALA-PORT BELL.

The Kampala-Port Bell Railway is the commencement of a new railway running from Port Bell to Kampala, six and a-half miles, and forming the base of any railway that will subsequently be built to open up the centre and western parts of Uganda and establish a direct connection with the Belgian Congo. The line is practically completed, and from May, 1914, has carried goods traffic in connection with the lake steamers during the period of construction, in order to relieve pressure of traffic at the Port. The Busoga Railway and the Busoga Railway Marine on Lake Kioga form the subject of an independent report. Heavy expenditure will have to be incurred on Lake Kioga to make it navigable, to provide the necessary accommodation and conveniences at different ports to deal with the flotilla. It is absolutely necessary that not only shall existing channels in the sudd be kept open, but also that new channels shall be cut, and new traffic-forming centres be provided. The number of ports and calling places is large, but the water-borne connection with them and consequent handling of the traffic offered is a matter of great difficulty.

Pension Fund for Miners.

In the House of Assembly this week, Mr. Rockey moved that the Select Committee on the establishment of the pension fund for white workers on the mines have power to take evidence and call for papers, that the Committee consist of ten members, and that the following be the members: The Minister of Mines, Messrs. Duncan, Feetham, Garcia, McAlister, Madeley, Myburgh, Papenfus, Wilcocks, and the mover.

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Commerce and Industries.

Opinion is becoming more divided as to whether, at the conclusion of the war, Germany will be ready immediately to enter upon a trade war. Mr. T. Russell, speaking at the Rotary Club, Edinburgh, on the probable condition of trade after the war, said (according to the *Financial Times*):—"At the close of the war, Germany would not be ready to compete. Germany was short of materials. Before she could dump goods she must obtain the material to make them with—and means to pay for them. Many of her factories were closed already. Competition after the war would come from America long before it came from Germany."

* * * *

Reuter's representative at Melbourne reports that the Federal Executive has approved regulations for the wiping out of enemy and naturalised shareholders in public companies and making the transfer of their shares to the Public Trustee until a year after the war obligatory. Before April 15th, enemy shareholders may apply to the Attorney-General, after transfer, to have their shares sold, and they will receive the proceeds. The regulations provide for the payment of dividends on enemy shares to the Public Trustee after allowing reasonable living expenses.

* * * *

A report on "measures for securing the position, after the war, of certain branches of British industry," prepared by a Sub-Committee of the Advisory Committee to the Board of Trade on Commercial Intelligence, has been issued as a Parliamentary paper. The chief recommendations include:—(1) Tariff protection for manufacturers of certain articles; (2) widely spread, reasonable import duties; (3) the establishment of a Ministry of Commerce; (4) larger grants for scientific industrial research and training; (5) copyright law to be brought into line with that of the United States of America; (6) continued efforts to secure uniformity of patent law throughout the Empire; (7) place of origin to be marked on German and Austrian and other foreign goods; (8) an impartial tribunal to prevent preference for foreign traders from British shipping or railway companies; (9) improvement and extension of the canal system; (10) shipping companies to be prohibited from charging higher rates from British ports than from North European ports; (11) joint stock banks to be asked to give greater assistance to British industrial enterprise; (12) Government departments and local authorities to buy only British goods; (13) British financial houses to be urged to secure preferential treatment for British contractors and manufacturers in respect of the public works to be carried out by foreign loans; (14) trade exhibitions under the control of the Board of Trade; (15) British Consuls to report cases of alleged infringement of British trade marks; (16) appointment of trade commissioners to be extended to the principal foreign countries; (17) commercial utility of British Consular service to be increased; (18) efforts to be made to check the undervaluation of goods by non-British importers into countries with *ad valorem* tariffs; and (19) an Imperial Customs Union with a view to the adoption at some later period of free trade within the Empire.

WANTED.—Antimony Mine ; state location, character and quantity of ores and full particulars. Address Manufacturer, Station C, New York, U.S.A.

The new Government Bill to amend the Trading with the Enemy Acts, introduced into the House of Commons by the Solicitor-General, contains drastic provisions. Where the Board of Trade finds that a business of any person, firm or company is, by reason of the enemy nationality or enemy association of the firm carried on wholly or mainly for the benefit of or under the control of enemies, whether here or abroad, the Board shall, unless it is expedient to do so, make an order:— (1) Stopping the person, firm or company from trading, except for the purpose, if any, specified in the order; or (2) requiring the business to be wound up. The Bill gives power to the Board of Trade to appoint inspectors and supervisors under the Trading with the Enemy Act, and includes the power to appoint an inspector or supervisor of the business for the purpose of ascertaining whether the business is carried on to the benefit of or under the control of aliens, or for the purpose of ascertaining the relation existing, or which before the war existed, between such persons, firm or company. The Board may invest in the custodian any property belonging to or held for the enemy, and may confer such powers of selling, managing, or otherwise dealing with the property as the Board may deem proper.

Rezende Mines.

The results for the month of January, 1916, were as follows:—Estimated profit: Central Section, £405; Old West Section, £705; total profit, £1,110.

S.A. MINING YEAR BOOK. 1915.

BY S. R. POTTER
(Editor, "S.A. MINING JOURNAL.")

Vol. I.

ANNUAL MEETINGS AND
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Company Meetings.

PREMIER DIAMONDS.

AMALGAMATION QUESTION.

TAXATION ANOMALIES.

The 13th ordinary general meeting of the Premier (Transvaal) Diamond Mining Company, Ltd., was held in the boardroom, Cullinan Buildings, Johannesburg, on Feb. 25. Sir T. A. Cullinan, Chairman of the Company, presided, and there were also present Messrs. A. A. Auret, W. H. Burrill, W. H. Dawe, Paul Dreyfus, F. C. Dumat, T. Edington, P. Ross Frames, G. Imroth, W. H. Mardell, J. W. Philip, J. F. Rutherford, G. Sonn and A. Sprinz.

The Chairman said:—In moving the adoption of the directors' report and the balance sheet and accounts I wish to offer a few remarks on them as well as on the future of the company. You all know that we have been passing through bad times, particularly for the diamond industry, on account of the war, and that the Premier Mine has been closed for 18 months. For some time after the commencement of hostilities it was quite impossible to dispose of any diamonds, the production from the alluvial fields, at one time, alone, providing more than sufficient to meet the insignificant demand. However, in agreement with those holding large stocks, we decided not to sell any of our goods for prices less than those ruling before the war, a policy that has been justified by the results, for we found after some time a limited demand sprang up, and this was satisfied by putting upon the market a quantity of diamonds not more than sufficient to meet the expansion. During the financial year we have realised diamonds to the value of £382,215—less than three months' production in normal times.

In last year's accounts the diamonds were written down so as to provide for a possible loss, but I am pleased to be able to inform you that they have realised the prices at which they were shipped, and the sum of £23,439, under the heading "Diamond Account" in Revenue Account No. 1 represents about the difference between the shipping and book values. The sales effected have enabled the board since the close of the year to declare a dividend on preference shares for the period 1st May, to 31st October, 1914.

Assistance to Workmen.

The board has endeavoured to keep expenses down to a minimum, but it had to assist certain of its workmen, who were unable to obtain employment elsewhere, by undertaking a certain amount of relief work, and further has made allowances to the wives and families of the men who went to the front. The total expenditure for the year, outside of income tax, amounted to £51,412. The company has also come to the aid of both the men who remained in its service and those who left when the mine shut down, by allowing them and their families to occupy the houses on the company's property, and supplying them with electric light, water, etc., free of charge, and when I tell you that there are between 300 and 400 children in the school there you will see to what extent advantage is being taken of these privileges. Since the middle of January the company has been engaged upon washing the lumps and tailings from the old No. 1 gear, and so far the results are satisfactory. In

the early days we had not the necessary appliances for disintegrating the lumps, and consequently a substantial proportion of untreated ground found its way to the dump. How long the lumps, which have been drawn upon from time to time, will last, I cannot say, but up to the present the returns more than cover expenses, a matter of some moment, as we have to husband our resources against the time when work will again be carried on on a more extensive scale.

Co-operation Among Producers.

You will notice from the directors' report that we have been working in harmony with other holders and producers of diamonds, but in view of the dislocation of the diamond trade in consequence of the upheaval in Europe, and the anticipated smaller demand after the war, it behoves those upon whose shoulders rests the responsibility of maintaining and increasing the price of diamonds, to establish more complete co-operation among the great producers. Should something not be done shortly I predict that a very serious state of affairs will arise: a state of affairs not only affecting the producers but also the revenue of the country. Whether this closer co-operation is to be achieved by a fusion of interests, or is to be accomplished in some other form, is a matter for the future. Something has to be done: the difficulties are great, but not insurmountable. The question is receiving the most earnest consideration of your board, and I hope shareholders will take this opportunity of expressing their views on the policy to be followed by the board to bring about the desired end. I do not think it would be wise, in a matter of such delicacy, at this stage to comment on the discussion that has been taking place in the Press on this most important matter. With regard to our future mining, we have often been asked "What quantity of blue ground have you upon the floors?" You will notice that the manager's report does not give this information. I want to bring to the notice of those who have not been in touch with what we have been doing in the past that we have a direct treatment system, that means that the ground is brought direct from the mine to the washing machines, and is there crushed and washed, so that the diamonds that were in the mine in the morning may be in the safe in the evening. We, therefore, require no floors—our mine is our floor. From the 360 foot level upon which will be our next onsetting point, 33 million loads will be available, and to increase this quantity all that is required is an extension of the haulage incline. In regard to the work of the staff, the chairman said: I want to thank those responsible for the management of the mine for their co-operation in these times. Although we have shut down, there has been a good deal of work involved in trying to alleviate the distress of the men who were out of employment, and the management has considerably helped the board in that direction. The same applies to the members of the staff of the town office. I want to thank them, and the staff of our London office, for their co-operation, and Mr. Busch and his staff in London for the way in which they have dealt with the sale of diamonds.

Mr. Ross Frames.

Mr. Ross Frames said:—Mr. Chairman and Gentlemen,—In seconding the adoption of the report and accounts there are one or two matters I should like to

bring to your notice. You will remember that when the Precious Stones Ordinance fixing the Government's interest in the net product of any diamond mine at 60 per cent. was passed, the profit tax on gold had already been imposed by a proclamation promulgated during the previous year, so that it is fair to assume that the Legislature intended that the 60 per cent. should cover any tax that might have been exacted otherwise in respect of the mining profits from diamond mines, and that this was the view of the Government and the Union Parliament is proved by the fact that in the Mining Taxation Act, 1910, which repealed, replaced and expanded the profits Tax Proclamation (Transvaal) of 1903, provision is made that there shall be levied annually a tax of 10 per cent. on the profits of mining for diamonds—but an exception is made—a most important and equitable exception—for we find in section 6 of the same Act that:—"Whenever under the provisions of any law mentioned in the Second Schedule to this Act the Crown is entitled to a share of profits, not less than the amount which would be leviable as taxation under this Act, no tax shall be payable thereunder in respect of these profits."

The Government's Interest.

The Precious Stones Ordinance (1903) under which we pay the Government 60 per cent. of the profits from the Premier Mine, is mentioned in the Second Schedule. Under the Act cited a tax of 10 per cent. of the profits from gold mining was also imposed. So it must be perfectly clear to the meaneast intelligence that in 1910 the Legislature regarded the 60 per cent. interest of the Government in the mining profits of this company as covering and including the 10 per cent. mining profits levied upon gold mines and other diamond mining enterprises in which the Crown was not entitled to a share. If this is not so, what other possible reason could there have been for exempting us? If anyone cares to take the trouble to read the original draft of the Precious Stones Ordinance, 1903, he will find that it was proposed that the owner should have a four-tenths undivided share in any diamond mine found upon his property and the Crown was entitled to the remaining six-tenths. A further very important proposal was contained in this draft and that was that the holders of shares in a diamond mine were entitled to claim a division of the mine; and then another provision was made that the Lieutenant-Governor should have power to make an agreement with the owner of the land on which a mine is situated for the working thereof for such period and on such terms as might be agreed upon, but subject to certain conditions, among which was one that there should be paid to the Colonial Treasurer such proportion as might be agreed on of the annual net produce obtained from the working of the mine. From this you will see that in the first instance it was intended that the working of the mine was a matter of free contract, under which the Crown might have received less than 60 per cent. But finally in committee of the Legislative Council the Bill was amended and the right of the holders to demand a division of the mine was taken away and, further, the terms subject to which the owner of the land on which a mine is situated should be entitled to work the whole mine were laid down, amongst which terms was one that the net product should be divided between the Crown and the owner of the land in the proportion of their shares in the mine. If the owner of the land refused to work the mine the Lieutenant-Governor had

the right to call for public tenders for the working of the mine under contract on such terms as might be agreed on between the Lieutenant-Governor and the owner of the mine, subject to the profits arising from such contract being divided between the Crown and the owner in proportion to their respective holdings.

Terms of Contract.

I do not think anyone will contend that the Government could alter the terms of any contract entered into with a tenderer. Why then should Parliament or the Government alter the terms of our contract to work the Premier Mine. The terms of the contract under which we are working the mine were laid down in the Precious Stones Ordinance and we were free to accept or reject such contract; but we elected to accept the contract. I do not think anyone will contend that the Government or Parliament has any right to alter the terms of our contract without our consent. Yet we find that notwithstanding the provisions of the Precious Stones Ordinance and of the Mining Taxation Act, and notwithstanding the attempt of the Government honourably to carry out the terms of their contract with this company for the working of the mine,

Parliament and Income Tax.

Parliament capriciously in 1914 imposed an income tax on this company in respect of the mining profits and thereby reduced our share of such profits and at the same time increased the share of the Crown. Probably we shall be told that this was good business for the State; but I venture to think that even a pedlar or broker would not consider it honourable business. I am told that one member, who in his early political days was regarded as a coming man, on being asked why he had voted for the imposition of the tax on this company, replied that he did so because the Government refused to exempt the incomes of the life assurance companies from investments. This petulance and peevishness probably explains why this member has not fulfilled the promise of his early days. Another member, Mr. Duncan, justifying the exemption of the gold mines said: "When the State gave up claims to people to work it took what it regarded as the State's share. After the State had done that it could not say, 'We are going to take some more, as we did not take enough at first.'" What we say is: "When the State gave up the Premier Mine to the Premier Company to work it took what it regarded as the State's share. After the State had done that it could not say, 'We are going to take some more, as we did not take enough at first.'" "

This is the same Mr. Duncan who was Colonial Treasurer of the Transvaal when the Precious Stones Ordinance was passed, and who, speaking on the question of the division of the mine, said: "It ill became him as Treasurer of that Colony (the Transvaal) to refuse a gift horse such as was offered in the majority report of the Select Committee, and he hoped Sir Percy Fitzpatrick would believe him when he said he did not find it possible to agree with that report, not because he indulged in any reckless spirit of generosity, but he tried, in common with other members of the committee, to arrive at what was just." And later he said: "As long as the State had taken a fair share it could not ask for more." And he wound up his speech with the words, "What they should aim at was not generosity, because they could not afford to be generous, but justice." Mr. Duncan voted in the Union Parliament for the increase of the Government's share in the Premier Mine, and for a decrease of this company's share by making the Premier Company liable for income tax.

A "Star" Cable.

On January 25th last the following cable appeared in "The Star":

"LONDON, Monday.—The opinion is expressed in diamond circles that if the Union Government imposes an export tax of 10 per cent. on rough diamonds this would not interfere with business. Diamond merchants consider this would be the proper time to impose such a tax, as when the mines are in full swing the tax will have regulated itself so far as the new production is concerned. Some consider the amount of the tax could be more than recovered by a rise in the price of common and industrial diamonds, the prices of which are out of proportion to those of finer stones."

We have made inquiries in London, and we find that any proposal to place an export tax on rough diamonds is strongly opposed in diamond circles, and one is prompted to ask who inspired this alarming cable, and what was the object of its being dispatched at this time? I would not have drawn your attention to this cable, or taken the trouble to deal with the matter, but I have heard whispers that the Government are casting about for additional revenue, and have fixed their eyes upon the diamond industry.

Export Tax.

I am not concerned at the moment with other producers; most of them are in a different position from this company; but I am afraid that, even if an export tax were levied upon rough diamonds it would not yield much revenue at the present time.

The argument that such a tax would not injure the producers as it would be transferred to the purchaser by a 10 per cent. increase in the price of diamonds is absurd to those who have any knowledge of the diamond business. It must always be remembered that the diamonds that can be absorbed by the market at any time can only be reckoned in money value, and not in quantity. Let us suppose, for the purpose of illustration, that the normal annual demand for diamonds is ten million pounds (I take this figure for the sake of convenience), then in order to raise the price of diamonds 10 per cent. the producers would have to reduce the quantity put upon the market by a little more than 10 per cent. It is hardly necessary to say that the percentage of profit on the lower production would be less than on the larger, so that both the aggregate profit and rate of profit would be reduced to the detriment and disadvantage of the producer. It is a manifest error, therefore, to say that any export tax on rough diamonds would be paid only by the purchaser; the purchaser would pay more for his diamonds, and the producer would receive less. But why should I labour this aspect of the question? We are entitled to our share in the increase of the price of diamonds, and the State would receive 60 per cent. of such increase in the case of the Premier. It is a new doctrine that the State has the right to confiscate to its own use the increase in the price of any article or commodity; it is a vicious and immoral doctrine.

"The Martyr's Crown."

An impost of the kind under consideration would materially decrease the proportion of this company's profits, and would substantially increase the Government's share. If I were to give you the figures, they would startle you. Any legislation that may diminish the share of this company's profit under the Precious Stones Ordinance would constitute a breach of the agreement between the Government and the company, and would be grossly unjust, not to say highly immoral. I am nauseated by the oft-repeated statement that the company's profits are huge, and that its capital is small; but I would remind those who use this argument that the great majority of the present shareholders purchased their shares at enormous premiums, in the belief that the State

would not attempt, in breach of a contract, to enrich itself at the cost of the company. The share of capital laid out by the Premier Company is over £800,000, and the profits are now comparatively small, regard being had to the magnitude of our operations. If our operations were limited to-day to the scale contemplated in the arguments used in the old Legislative Council of the Transvaal, when the Government's share in the mine was determined there would be practically no profit for the Government or ourselves. But whether the profits are huge or small is quite beside the question. The Legislature, in spite of the company's protests, fixed what it considered was a fair division of the profits arising from our mining operations when the mine gave a value of 55s. 6d. per lead. What has happened in late years to justify the Legislature in taking from us what justly belongs to us? Parliament is all powerful and we have no remedy against the ruthless exercise of that power. When the Government's proposal to relieve us from the operation of the income tax was defeated no opportunity was given us of stating our case. The martyr's crown so much coveted in mediaeval times affords no satisfaction, and is no compensation for our pecuniary losses. I beg to second the adoption of the reports and accounts. (Applause.)

The report and accounts were adopted. Mr. John William Philip and Mr. John Munro were re-elected to the directorates. Messrs. Howard Pim and Hardy and Messrs. Alexander Aikun and Carter were reappointed auditors.

It was resolved that the remuneration of the auditors be at the rate of 150 guineas for each firm.

FERREIRA DEEP.

NET PROFIT, £483,582.

Mr. H. C. Boyd, chairman of the Ferreira Deep, Ltd., presided on Feb. 25 at the annual meeting of shareholders of that company, and there were present Messrs. E. A. Wallers, J. Munro, H. A. Rogers, G. Imroth, C. Meintjes, A. Sprinz, A. P. Richter, H. W. Thomas, and S. C. Steil, secretary.

Chairman's Speech.

The Chairman, in moving the adoption of the report of the directors and the accounts, said:—Gentlemen, the directors' report and the accounts for the period of 12 months ended the 30th of September last are now submitted for your approval. As is explained, expenditure on equipment since the amalgamation of the Ferreira Gold Mining Company has been written off, and any future expenditure of that nature will be charged out annually in the appropriation account. There is at present no reason to expect that there will be any material sum to be so dealt with. The method of showing mine expenditure under the direct headings of wages, stores, etc., has proved to be advantageous in assisting us to follow results more closely.

As you are aware, the serious collapse in No. 2 incline shaft in December, 1914, which was referred to at the last annual meeting, was followed by an even more serious accident of a similar nature in almost the same part of the shaft in April, and the results of the year's operations suffered severely in consequence. It is satisfactory to be able to record that, thanks to the system of reef packing which is constantly carried on in the current stopes, there was no disturbance in the actual working places. As it became apparent that any further trouble in the affected portion of No. 2 shaft might render it incapable of repair, it was decided as a precautionary measure to take steps to cut out that part of the incline as a hoisting way by sinking the

vertical to below the plane of the 7th level and connecting it therefrom by a crosscut.

Although very considerable expense is involved, the condition of the shaft to-day is such that it is clear that there was no alternative but to undertake this alteration, the cost of the mining part of which has unfortunately proved to be greater than originally anticipated, and may involve an expenditure of an additional £12,000. It has proved advisable to do a greater amount of excavation than was at first contemplated, and the recent further increase in the cost of material and the precautions found necessary to guard against the creation of dust in the workings have all added to the expense, while we have to bear in mind the difficulty of exactly estimating the cost of work of this nature involving such radical changes while current operations are proceeding. Satisfactory progress has been made with this mining work, but we have no definite information as to when the new machinery on order in England will be delivered; in regard to this increased freight charges will clearly have to be met. If shipment can be effected at a reasonable date it is hoped that the alteration will be satisfactorily completed shortly after the middle of this year—but it is at present impossible to say anything definite. When the change over is made hoisting operations in No. 2 shaft will be interrupted for about a fortnight, possible more, but in order to minimise the effect of this on the supply of ore to the mill a stock of sorted rock is being collected on the surface as opportunity for hoisting offers. This can be done at but little extra expense.

Increased Tonnage.

It is creditable to the management that in spite of these unfortunate accidents the tonnage hoisted during the year through the two deep shafts showed a material increase. Owing to exhaustion of the ore in the Ferreira section there was a reduction in the amount hoisted through the single outcrop shaft then remaining in use, in which, since November, hoisting operations have entirely ceased. Owing to the mining of a greater proportion of rock from the eastern section of the mine and the increased gold realisation charges, which are deducted, the value recovered per ton milled was 2s. 9d. lower, while costs rose 2s. 2d. per ton through the conditions created by the war, and the hampering of operations in, and expenditure in connection with, No. 2 shaft. The net profit of £163,582 added to the balance brought forward from the previous accounts enabled us to declare two dividends amounting to £416,500, and to pay a special bonus dividend of £245,000, after providing for the expenditure on equipment and for the Government taxes, including our estimated share of the special war levy of £500,000. The balance carried forward was £106,913, in which is included £22,350 Transvaal Government 3 per cent. stock at £97 5s.

The technical reports deal fully with the year's mining operations. Satisfactory values have been maintained in the main reef leader generally, and specially in the levels east of No. 1 shaft from No. 12 downwards. No better results were secured, however, on the 11th level, but further thorough prospecting in this and other poorer sections of the mine will be carried out later when the ordinary development operations are coming to an end. In the south reef values continued to be good throughout the year. The ore reserves position at the end of September remained satisfactory, there being only a reduction of 39,000 tons in the total of 1,834,100 tons developed. Against this the reef broken and sorted in packs in current stopes for the temporary support of the hanging wall had

increased to over 194,000 tons, more than 98,000 tons having been packed and a little over 81,000 tons withdrawn from other packs during the year. The average value of the ore reserves was 8.9 dwts., a decrease of .2 of a dwt. per ton.

Improved Recovery.

During the current financial year milling has proceeded at the rate of 55,000 tons monthly. The average recovery has increased by 2s. a ton, compared with last year's results, but costs have risen about 1s. 2d. per ton. Taking advantage of the satisfactory labour position, it has been possible to effect a material reduction generally in the stoping width. This naturally has a tendency to improve grade and increase costs per ton. There is every reason to believe that if labour conditions remain satisfactory and operations continue normally, we shall be able to maintain the present average rate of crushing during at least the remainder of this year, but there may be a tendency for the recovery per ton milled to decrease, as a larger proportion of ore will be drawn from the poorer eastern end of the mine.

Development results have shown no material change during the past four and a half months. In the considerable area below the Grahamstown dyke the south reef is not so good as when first encountered, but the leader, in which, however, relatively little work has been done, promises well. Incline shaft sinking is virtually completed, and comparatively little blocking out of ore remains to be accomplished, but as indicated above probably a considerable footage remains to be driven in certain parts of the mine for prospecting purposes. Although pressure generally continues to increase throughout the workings, they are so well supported that no anxiety is felt by our technical staff in regard to their stability.

Mr. F. J. Truemp, our manager, and 105 of the company's employees are now on active service in Europe or Africa. Their absence has naturally been felt, and we earnestly wish them a safe return to their duties here. To Mr. Cazalet, the consulting engineer, Mr. P. Selby, who has been appointed acting manager, and the staff generally our thanks are due for their continued efforts on the company's behalf. I now beg to move that the directors' report, balance sheet and accounts for the year ended the 30th of September, 1915, be received and adopted.

Mr. Rogers seconded the motion, which was agreed to.

Messrs. H. A. Rogers and H. C. Boyd, the retiring directors, were re-elected, and on the motion of Mr. Sprinz the auditors were reappointed.

CITY & SUBURBAN G. M. & ESTATE CO., LTD.

The annual general meeting of the shareholders in the City and Suburban Gold Mining and Estate Company, Ltd., was held at Pietermaritzburg on February 24th, the Chairman, Mr. W. J. O'Brien, presiding.

Those present were Messrs. A. O. Kufal, J. G. Macfarlane, L. Line, P. Davis, W. J. Shaw, Hugh Parker, A. Fox, Greiz, P. O'Meara, Hathorn, J. C. Templeton, D. M. Dixon, R. Y. Worthington, and J. Weighton (secretary).

The minutes of the previous meeting having been read and confirmed, the auditor's certificate was read.

In moving the adoption of the report and account, the Chairman said:

I have pleasure in submitting for your consideration and adoption the report and accounts for the year ended 31st December, 1915, and I do not propose to take up your time to-day by a lengthy address on the affairs of the company. There are, however, some salient features to which I may direct attention. The results of the year 1915 compared with 1914 were:—1915: Tons mined, 380,397 tons; 1914, 358,213 tons. 1915: Tons milled, 335,979 tons; 1914, 324,117 tons. 1915: Tonnage developed, 159,200 tons; 1914, 160,983 tons. 1915: Total development, 9,445 feet; 1914, 10,965 feet. 1915: Ore Reserves, 637,400 tons 9.6 dwt.; 1914, 758,700 tons 8.5 dwt. 1915: Revenue, £606,510, equal to 36/1.5 per ton; 1914, £587,290, equal 36/2.8 per ton. 1915: Expenditure, £356,930, equal to 21/3; 1914, £338,649, equal to 20/10.8 per ton. 1915: Profit, £249,880, equal to 14/10.5; 1914, £248,551, equal 15/4 per ton. From these figures it will be seen that, during the year under review, the tonnage mined increased by 22,184 tons, and the total milled increased by 11,862 tons to 335,979 tons, this being the largest amount of ore dealt with in any year in the history of the mine.

Whilst a record tonnage was treated during 1915, the manager points out that these figures cannot be expected to be maintained. This is accounted for by the decreasing width of the property as we approach the southern boundary, which gives a smaller area to work in, together with a greater depth from which the rock has to be hoisted. Although, however, there may be a sensible reduction in the tonnage, it is not expected that a material difference in the returns will be shown. The statement, therefore, need not alarm shareholders.

New Ground.

We have now penetrated the new ground acquired some time since at the 33rd, 34th, 35th, and 36th levels, and, so far as can be ascertained, the values are satisfactory. The footage developed decreased by 1,520 feet and the tonnage by 1,783 tons. The ore reserves have decreased by 121,300 tons but it will be noted that the value has improved from 8.5 dwt. at end of 1914 to 9.6 dwt. at end of last year, which makes a material difference as a set-off against the lessened ore reserves. As is pointed out by the manager in his report, the ore reserves may be expected to gradually decrease owing to a reduction in working faces throughout out the mine. Increases are shown in:—The working revenue of £19,610; in expenditure of £18,281; and of profit, £1,329; the value per ton being 36/1.5, against 36/2.8 in 1914, the working costs being 21/3, against 20/10.8 in 1914; the profit being 14/10.5, against 15/4 in 1914.

The main incline shaft was sunk a further 349 feet, the total depth now being 6,377 feet, whilst about 600 feet still remains before we reach our boundary.

The comparatively small sum of £1,535 8s. has been expended on capital account during the year.

Finance.

The financial position of the company at 31st December showed:—Liquid assets, £190,330 2s. 2d.; with liabilities, £162,417 12s. 2d.; giving a credit balance of £27,912 10s. It is unnecessary for me to analyse the balance-sheet submitted to you, but I may say that shareholders must regard it as eminently satisfactory.

The only point in the accounts to which I will draw attention is the reduction of revenue by the sum of £1,960 10s. 3d. which is an allowance made in the books for the increase in certain charges in connection with the realisation of gold since the commencement of the war. Rates of freight and insurance have naturally gone up very considerably, and there are other charges incidental to the present condition of affairs which have to be allowed for which I need not refer to in detail. We are of opinion that the allowance made will fully provide for every contingency. There is another matter which calls for some attention from the chair. Exception has been taken by some shareholders to a reduction in the dividend for the second half of 1915, but I would point out that, although the profits earned during the year would have permitted the usual 6s. being paid at December, 1915, the directors considered it more prudent in view of the critical times through which we were passing not to declare up to the hilt. Besides this, we have to provide for our proportion of the special war levy of £500,000, estimated to be between £11,000 and £12,000, which amount is not provided for in the accounts. We are also committed to capital expenditure of from £10,000 to £11,000 for air compressor, pumping plant and electrical hoist, and there is a contingent liability on account of some 2.7 claims still to be acquired from the City Deep, Ltd., when the boundaries can be adjusted. I would strongly emphasise the fact that the company has paid £105,000 during recent years for certain claims acquired, and this without reducing the dividend until the half-year ended 31st December last. I am sure when these facts are brought to the notice of shareholders they will recognise that the reduction of 1s. per share in the dividend was well justified.

Life of Mine.

During the early part of last year several enquiries were made of the Board concerning the life of the mine, and certain comments were made thereon in the Johannesburg mining press. In consequence thereof the Board requested the consulting engineer and the manager to go fully into the question and report. Immediately on receipt of such report its contents were embodied in a circular which was issued to every shareholder on the 14th July, 1915. This report was of a very comprehensive character and we received the thanks of many shareholders for its publication. I have now to report that the Government Mining Department has made a further re-calculation of the life of the mine, and has set it down at seven years from the 1st January, 1915, and this, after consultation with our technical advisers, has been agreed to by the Board. I would draw the attention of shareholders to the manager's reports which are attached to the annual report, and give much detailed information of a valuable character. You will be interested to hear that about 80 of the employees of the company are on active service in Africa or Overseas; this is more than 25 per cent. of our strength. Their positions are being kept open for them and those who have dependents are receiving half-pay, and the others quarter-pay. Whilst this is a very large proportion I would remark that several more men would willingly let them go were it not for the fact that

their presence on the mine is essential to keeping up the output, the necessity for which is generally recognised. I am glad to say that our employees are generously contributing to the various war funds, the total amount contributed during the past year is, I understand, over £2,000.

Generally speaking the war has had the effect of decreasing the efficiency of white labour and increasing the cost of stores and materials, but, so far, owing to the excellent buying committee established under the aegis of the Chamber of Mines, there has been no serious shortage of stores.

The extraordinary conditions which have been brought about by the war have probably been felt less in South Africa than elsewhere, and I think shareholders have every reason to be grateful to the Government of Great Britain and of the Union of South Africa for the excellent arrangements made to carry on the mines on the Rand and for the disposal of gold.

One of your directors, Lieut. Lovell Greene, of the Natal Carbineers, who went through the German South-West campaign with that regiment now holds a commission in the Natal Regiment which has recently been in action in Egypt.

Before closing my remarks I desire to refer to the loss which this company has sustained through the death of Mr. W. M. Hunter, which took place in September last. Mr. Hunter was secretary of the company for over 23 years, during all of which time he devoted himself assiduously to its affairs. The secretarial work of the head office was carried on by Mr. Cockburn, our accountant, during the long illness of Mr. Hunter, and the best thanks of the Board are due to him for his services.

Mr. J. Weighton was appointed secretary of the company in October.

On behalf of the Board I desire to express our grateful thanks to the manager, Mr. C. Glynn, who has devotedly carried out his duties in very trying circumstances, to our consulting engineer, Mr. Cazalet, whose valuable services have always been at our disposal; to the Local Board, Johannesburg, and to the London Committee.

I now formally move "that the report and accounts, as submitted to this meeting be and are hereby received and adopted."

Mr. P. Davis seconded.

The report and accounts were adopted without discussion.

The retiring directors, Messrs. W. J. O'Brien, Hugh Parker, and Leonard Line, were re-elected.

The retiring auditor, Mr. Francis Terry, was re-elected.

NEW HERIOT G. M. CO.

The annual general meeting of shareholders in the New Heriot Gold Mining Company was held at Pietermaritzburg on February 24th, Mr. W. J. O'Brien, chairman, presiding.

Those present were Messrs. L. Line, G. J. Macfarlane, W. J. Shaw, Hugh Parker, R. Y. Worthington, P. O'Meara, Hathorn, Greig, Hathorn, J. C. Templeton, D. M. Dixon, P. F. Payne, R. H. Raw, F. Terry, W. Wade, and J. Weighton (secretary). The minutes of the previous general meeting were read and confirmed. The auditors' certificate was read.

The Chairman, in moving the adoption of the report and accounts, said: The report and accounts for the year ended 31st December, 1915, have been

circulated among shareholders, and the results set out therein must be regarded as eminently satisfactory. A comparison between the years 1915 and 1914 shows:—1915: Tons mined, 191,953; 1914, 184,032. 1915: Tons milled, 155,600; 1914, 154,228. 1915: Tonnage developed, 55,845; 1914, 73,752. 1915: Development, 1,473 feet; 1914, 1,636 feet. 1915: Ore Reserves, 536,680 tons; 1914, 588,315 tons. 1915: Revenue, £279,490; 1914, £281,765. 1915: Expenditure, £169,609; 1914, £161,441. 1915: Profit, £109,881; 1914, £120,324. From these figures it will be seen that during the year under review the tonnage mined increased by 7,921 tons, whilst the tonnage milled increased by 1,372 tons. The footage developed decreased by 163 feet, and the tonnage by 17,907 tons. Ore reserves have decreased by 51,635 tons, but the value shows a slight increase of 0.1 dwts. per ton. Working revenue decreased by £2,275, equal to 7.41. per ton milled. Working costs increased by £8,168, equal to 10.41. per ton milled. Profit decreased by £10,443, equal to 1/5.8d. per ton milled. The value per ton being 35 11.1 against 36 6.5 in 1914. The working costs being 21/9.6 against 20 11.2 in 1914. The profit being 14/1.5 against 15/7.3 in 1914.

Working Costs.

The increase in the working costs included renewals and additions to plant and also expenditure due to the war, amounting to £9,122, and this may be regarded as exceptional. The abnormal expenditure during the year, owing to increase in cost of stores, etc., equalled 1s. 2d. per ton, or from £600 to £700 per month. I would draw attention to the great amount of pumping which had to be done during the year. Over 127,000,000 gallons of water were pumped against about 54,000,000 gallons in the previous year, or an increase of about 73,000,000 gallons. It will doubtless be noticed that the revenue earned during the year has been reduced by the sum of £3,490 11s. 9d., which represents an allowance for an increase on the realisation on all gold won from mid-October, 1914, due to the war. The provision previously made for forwarding and realising gold has proved to be insufficient to meet the heavy charges which have been made in consequence of the war. In the circumstances the Board deemed it advisable to make a further allowance on the basis of the rates prevailing at the present time, and it is expected that the sum now included in the accounts will fully cover the increase in the costs of realisation. With regard to ore mined, slightly over 30 per cent., or 58,677 tons, were obtained from reclamation work, and I am glad to say there is every indication that a similar proportion of the tonnage will be obtained from old workings for some time to come. It is interesting to note that a large percentage of the ore referred to was obtained from the first level which was supposed to be exhausted twenty-five years ago. The value of this reclamation ore cannot, however, be relied on, as it must be mined as found owing to the difficulty of getting it out of old workings where there is always a fear of caving. It is worthy of remark that the number of tons milled establishes a record in the history of the mine, although the milling power has been decreased from 70 to 60 stamps. This is due to the renovation of the mill, whereby the duty per stamp per day has been increased from 6.93 to

7,744 tons. This record tonnage cannot, of course, be expected to continue.

Dividends.

A dividend of 40 per cent. was declared in May and of 35 per cent. in November, 1915. I am sure shareholders will desire me to refer to the reduction of 1s. per share in the dividend which took place at the declaration in November, 1915. Although the profits earned would have admitted of the larger amount being paid, yet your Board deemed it prudent, in view of the abnormal times, not to make a larger declaration, and I would also point out that our proportion of the special war levy of £500,000 estimated to amount to £5,000, still remains to be paid, and you will notice that no provision has been made for the same in the accounts now before you. Shareholders will remember that on the 15th November, 1913, serious flooding of the mine occurred, whereby we sustained a net loss in working in November and December, of £3,913, instead of a profit of approximately £18,000 for that period. The cause of the flooding was, in the opinion of the Board, the faulty construction of the railway embankment contiguous to the company's property and owned by the South African Government. A case for damages was entered against the Minister of Railways, the demand being £18,014. The case was heard at Johannesburg in May, 1915, when judgment was given against the company. Acting under the advice of the company's legal advisers, an appeal against this judgment was lodged, and it was expected that the appeal would be held before the Appellate Court of the Union of South Africa during this month, but we have recently been informed that it has now been postponed until May of this year.

Satisfactory Position.

The financial position of the company is satisfactory, the total liquid assets at 31st December being £46,218 5s. 8d., against which there are liabilities of £22,944 1s. 1d., leaving a credit balance of £23,274 4s. 7d. The balance-sheet for the year under review needs no comment from me, but I would draw the attention of shareholders to the manager's and the consulting engineer's reports, which are included in the annual report and contain much valuable information in connection with the mine. The company is willingly bearing its share of our obligations to the Empire. Sixteen of our employees are on active service, their positions being kept open for them, and those having dependents receive half-pay and others quarter-pay. This number would be augmented were it possible to spare more men from the mine; but we are carrying on the work with the smallest possible staff. I would refer to what shareholders naturally consider an important matter, that is, the life of the mine. The Government Mining Engineer has recently advised us that, taking into consideration the whole circumstances of the mine, he has re-estimated the life and fixes it at seven years as from 1st January, 1915, a period considered not unreasonable by the Board, who agreed to it after conferring with our advisers in Johannesburg. Before concluding, I desire to refer to the loss the company has sustained through the death, which occurred in September last, of Mr. W. M. Hunter, who was secretary of the company for 23 years, during

which period he carried out his duties with the greatest assiduity and to the full satisfaction of the Board. Mr. J. Weighton was appointed secretary of the company in October. During the period of Mr. Hunter's illness, and prior to the appointment of Mr. Weighton, Mr. Cockburn, our head office accountant, carried out the duties of secretary, and I desire to express the thanks of the Board for his services. I have much pleasure in referring to the excellent work done under exceedingly trying circumstances by our manager, Mr. Howard Warren, also to the consulting engineer, Mr. Stuart Martin, whose valuable services are always at our disposal; also to the valuable services rendered by the Local Board in Johannesburg and by the London Committee. I now formally move "That the report and accounts as submitted to this meeting, be, and are hereby received and adopted." Mr. P. F. Payne seconded. The reports and accounts were adopted without discussion. The retiring directors, Messrs. J. Waldie Pierson, G. J. Macfarlane and Lovell Greene, were re-elected. The retiring auditors, Messrs. Loran and Baynes, were re-appointed. There being no other business, the proceedings terminated.

S. A. COLLIERIES, LTD.

RAILWAY ANOMALIES.

Mr. Francis Oats presided over the 16th annual meeting of the South African Collieries, Ltd., on February 24, at the office in Rhodes' Buildings, Capetown.

The directors, in their report dealing with the operations of the company for the year 1915, stated:—The nominal capital remains unchanged, viz.: Authorised, £110,000; issued, £101,806; reserve, £8,194. The company's machinery, plant and buildings are being maintained in a thorough state of efficiency. The following capital expenditure has been incurred during the year:—S.S. Battenhall, £1,398; drain shaft, £441; drain shaft machinery, £225; borehole, Schroeder's Hope, £75; motor-car, £321; motor-car shed, £48; new properties, £355; wagon and oxen, £230.

After writing off the undermentioned amounts for depreciation and providing for all claims chargeable against the year, there is a credit balance of £187 6s. 7d., which has been transferred to the balance sheet:—Machinery and plant, £4,297; Rowan's farm, £3,000; S.S. Battenhall, £1,136; buildings, £507; shafts, £360; railway siding, £296; water service, £64.

The output for the year 1915 was 97,259 tons and the high standard in the quality of the coal mined is still maintained. During the early part of the year, owing to the military operations (in then German South-West Africa) railway trucks were scarce, hence the decrease in the output compared with the previous years. During January the S.S. Battenhall was laid up for the purpose of undergoing her No. 3 Survey, which cost £2,281 17s. 4d. £1,000 has been charged to Battenhall Insurance Fund and £1,281 17s. 4d. has been charged to the Battenhall capital account. Additional bunker accommodation was made, which cost £116 15s.; this amount has also been placed to capital account. The vessel has been chartered to the Cape Explosives Works, Ltd., for twelve months from December 17, 1915, and is engaged on general cargo work.

More Trucks Wanted.

The Chairman, in moving the adoption of the report and account, said that owing to a better supply of railway trucks they were increasing the output, and they would have no difficulty in further increasing it if they had more trucks. They were, however, subject to the Railway Administration which, it seemed to him, did exactly as it pleased, and there was no appeal, not even to Parliament. While the Natal collieries were short of trucks it was very wrong to allow trucks to take coal a thousand miles distant, the return journey—owing to delays—frequently occupying a month, while collieries 200 miles only from the coast were unable to obtain a sufficient supply of trucks. This was war time, and they could not do everything, and even shipping was short, and they must bear the 1s. they had rather than fly to those they knew not of. But when the war was over there must be a very radical change in the way in which the Natal railways were administered. It was a comfort to know that Mr. Burton had been elected to represent a Natal constituency, and matters regarding the railways would be forced on his consideration. The anomalous position of the railway rates was proved by the fact that the conveyance of a long ton of coal from the S.A. Collieries to Durban—a distance of 231 miles—was 6s. 5½d., while to Capetown, a distance of 1,105 miles, the charge was only 16s. a ton. He did not object to coal being carried to Capetown at a cheap rate, but why should the Durban route be handicapped at least 3s. a ton for the same service as compared with coal which was sent to Capetown? It was arbitrary and absolutely unjust, and the only thing they could do was to appeal to the Railway Board and the Administration. It was an intolerable state of affairs. They talked of taxation and representation going together, but they had no representation so far as the administration of railways was concerned, and Parliament itself did not seem to be able to deal with the matter.

"A Flagrant Injustice."

He was not a Hertzogite in politics, but he did say that if Mr. Hertzog wanted to reform the Railway Administration, the Natal members would be wanting in their duty to their own Province if they did not assist in carrying that out. A little while ago there were some iron trucks in Natal, but the company was debarred from sending coal in them to Capetown, although the trucks were available for the Transvaal trade. It was a most flagrant injustice that iron trucks made in Natal should stand unused on the sidings in Natal while the collieries had to wait until wooden trucks were available. This was explainable only by the absolute callousness of the railway authorities towards the Natal collieries.

Proceeding, Mr. Oats said the company ran into debt when it could not get money from its shareholders, and then they found a difficulty in shipping coal to Capetown, where it had customers, and so it purchased the steamer Battenhall. The directors had been engaged in trying to reduce the debt and now the interest charges were not so heavy, he hoped that the debt would be diminished at a quicker rate. The price of coal had been increased to a slight extent, and he believed that with the help of the reserves and with a fair supply of trucks they would be able to develop

the new property. They had spent a lot of money in boring, and had put down some miles of railway, and he hoped that before they met again the shaft would be in a forward position. A part of the colliery containing anthracite coal was being developed, and he pointed out that the consumption of anthracite coal for such as gas plants and smelting was on the increase. The directors thought that in this direction they would have another string to their bow, but the shareholders must have patience. The latter were in this position, they did not subscribe the further money required to keep the colliery going, so the directors borrowed the money, and those who lent the money wanted it back before any dividends could be declared. It would not have been very difficult to have shown a greater balance of profit, but there was no use in doing that. The sum of £9,661 had been applied to depreciation, while the interest on debenture and loans came to £2,256. The colliery was coming into a much more healthy position, and he hoped that notwithstanding all the time they had waited they would yet see all the debts paid off and profits returned to the shareholders.

Dr. H. Watkins, M.L.A., seconded the motion, which was agreed to.

On the motion of Mr. W. Craig, Mr. Francis Oats, Mr. James Henderson, M.L.A., and Mr. Achille Vialatte were re-elected directors.

On the proposition of Mr. W. Pickering, Messrs. Howard Pim and Harlie were re-appointed auditors.

The proceedings closed with a vote of thanks to the chairman.

NATAL CAMBRIAN COLLIERIES.

The annual meeting of shareholders of Natal Cambrian Collieries, Ltd., was held in Durban on the 24th of February, when the Hon. C. G. Smith presided.

The eleventh annual report, which, together with the balance sheet and manager's report, was taken as read, stated that it was with regret that the directors had to report the greatly reduced business available during the year. Soon after war broke out there was a large falling off in the number of steamers calling for bunkers at this port—there was also a greatly diminished export business, due to the high rate of freights, prevailing. The output of the company's mine had therefore suffered in common with the outputs of other Natal mines. The total quantity of coal produced in Natal during 1915 amounted to 2,314,568 tons compared with 2,071,381 tons in 1914, while that produced by the Cambrian was 88,025 tons in 1915 compared with 139,214 tons in 1914.

The report added: Unfortunately, in January, 1915, a fire occurred on the surface doing considerable damage to the plant. Fortunately the damage was fully covered by insurance. That fire affected the output adversely during the months of January and February, the total output for the two months only amount to 5,984 tons. In the months of March, July and October respectively, the output was only in the region of 5,000 tons, owing to the lack of business referred to above. In view of the limited demand for coal, and the consequent reduced output, it was necessary to reduce expenditure to the minimum consistent with efficiency. Notwithstanding strenuous efforts in that direction, a loss on the year's working was inevitable. The directors were pleased to report, however, that with the

advent of the year 1916 business had increased considerably—the labour supply at the mine was being augmented in order to increase the output to fulfil the contracts which the company had entered into for the supply of coal during the current year. The directors, therefore, look forward with pleasure to a profitable year, and expect to redeem the second debentures before the end of 1916. The first debentures, which fell due on the 31st of December, 1915, had been renewed for five years at the same rate of interest. The erection of the Felspar Washer, referred to in the last report, was completed early last year, and is working satisfactorily.

The board tendered thanks for able services rendered, to Mr. Arthur Smith (the manager), the mine staff, secretaries at the head office, and to Mr. Bell at the Point office. The manager's report mentioned that the Indian rate of pay had increased considerably. The Indians were all free men. Daily average working, 1914, natives and Indians, 714, and in 1915, 498; natives in the compound December, 1914, 496, in 1915, 331; Indians in the compound, December, 1914, 201, in 1915, 173. The mine was considerably handicapped throughout the year for want of business, and stood in all 91 whole days, the mine also stood for trucks 640 hours 15 minutes. I regret to say that the output for the year was only 88,025 tons 18cwt., being 51,188 tons 4cwt., less than the previous year. The balance sheet showed that the assets of the colliery were freehold farms and mineral rights over certain other farms, £24,709 17s. 6d.; machinery and plant, £34,585 11s. 10d.; stores, coal, furniture and sundry debtors making the total of £170,052 5s. 6d.; of which all but £958 14s. 8d. was represented by capital and liabilities. The profit and loss account showed a credit from 1914 of £6,391 15s. 3d., from which had to be deducted the balance of expenditure over receipts in 1915 of £2,933 0s. 7d., and depreciation £2,500, leaving a balance of £958 14s. 8d. for transferance to the capital account.

A Year of Hardships.

The chairman reminded the shareholders of the fears expressed at the previous annual meeting and said that those fears were justified by the result of the year's working. The year had been one of hardships. In the first place the mine had been held up for 91 days for want of business, and on 64 days for lack of trucks. Throughout the whole of that period the usual expenses of management had to be maintained, so that the mine, to show a loss of only £2,933 on the year's working, must be considered a valuable one. On the top of the loss the board had depreciated the book value of the machinery and plant in accordance with the practice of successive boards, since the opening of the mine. He assured them that the machinery was shown at a price which was considerably below its real value. In fact, the book value of the plant was little higher than that of scrap iron. The chairman reminded them also of the disasters which had overtaken the mine during its lifetime. They had been visited by fire and strikes, and had suffered from a lack of trucks, but despite all had paid 3½ per cent. interest to debenture-holders. It had been necessary to renew the debenture debt for another five years. The holders had willingly agreed to do that, which he considered a great tribute to the value of the mine. It was the second time the directors had had to renew the debentures, and it

was evident that the holders were more than satisfied with the promptitude of the interest payments.

The future appeared to be very promising, and he felt sure the colliery had survived its troubles. The management had contracted to supply 15,000 tons of coal per month for the year 1916, and he was assured that that quantity could be increased, but even if it were not it was sufficient to justify the greatest optimism. He hoped that this year would see the extinction of the second debentures, and also show a surplus.

As far as the

Truck Supply.

was concerned he thought they were always between the devil and the deep sea, but the officials were always most courteous, which, he believed, was the reason why there were not more complaints. However, the question was now being discussed in Parliament, and he would not say more than that he gave the Administration credit for fairly apportioning the truck supply, according to the outputs of the collieries. He was afraid that the Railways and Harbours Control Bill was introduced for the purpose of covering up the deficiencies of the Railway Department. When once that department had secured control it would be most difficult to know which section was to blame for defects.

Life of the Mine.

The chairman said that they could unhesitatingly accept the estimate of the manager. Mr. Smith estimated that the mine, using the top seam only, and with an output of 200,000 tons per annum, would be 20 years.

Mr. Smith, after paying a tribute to the members of the staff, proposed that the report be adopted.

Mr. Butcher seconded, and the report was adopted without discussion.

The trustees for the debenture holders proposed the re-election of Messrs. C. Whyteck, W. E. Butcher, and H. L. Reynolds to the directorate, and Mr. A. Worman proposed the Hon. C. G. Smith and Mr. A. Townsend for the remaining seats. These five gentlemen were thereupon re-elected.

Mr. F. G. G. Lucas was re-appointed auditor at a remuneration of £40.

EAST RIETFontein SYNDICATE, LIMITED.

At the twelfth ordinary annual meeting of the East Rietfontein Syndicate, Ltd., held on February 25 in the offices of the Consolidated Goldfields, 9,148 shares were represented out of an issued capital of 25,000 shares.

Mr. D. Christopherson presided, and in moving the adoption of the annual report and accounts said during the year under review, thanks principally to revenue derived from sales of water, the company had paid off the balance of the loans and was now clear of debt. There still remained a balance at debit of income and expenditure account of £5,570. Practically the whole of the property was leased for agricultural and other purposes.

Mr. H. Newhouse, seconding, said it was a matter for congratulation that the company, after so many years, was now free from debt—a circumstance which he felt was largely due to the skilful management of the chairman.

The report and accounts were adopted, and the directors were re-elected.

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